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# FURTHERANCE OF TREATMENT OF DIABETES MELLITUS

ELLIOTT P. JOSLIN, M.D.
Boston

## DIABETES THEN AND NOW

Fifty years ago we struggled to keep patients alive, but now we strive to keep them healthy. Then two thirds (63.8 per cent) of our patients died of diabetic coma, but today death from coma is so rare (1.9 per cent) that a certificate with this diagnosis should attract the attention of the medical examiner. Then, few in the first thirty years of life lived long enough to die of arteriosclerosis, but now even up to the age of 40 this is the most prominent cause of death, and of our patients of all ages over two thirds (69.1 per cent) succumb to it. Yet during the first fifteen years of this century, we felt decidedly more hopeless when confronted with a case of diabetic coma than we do today with the problem of arteriosclerosis. Coma is distinctive of the diabetic person, but arteriosclerosis is fatal alike to both diabetic, 69 per cent, and nondiabetic persons, 60 per cent, and the riddle to solve is why the former experience it prematurely and more rapidly than the latter. Decipher that and the lives of 143,000,000 nondiabetic persons in the country can be prolonged. Diabetic persons in the United States constitute a mass experimental group for the study of arteriosclerosis. To help one diabetic person keep young is to postpone growing old for 70 nondiabetic persons.

## PESSIMISM VERSUS OPTIMISM

Since pessimism is so rife in any discussion of prevalence of arteriosclerosis in the diabetic person, let us meet the situation head on to see if we have reached an impasse. At any rate, we have carried our diabetic patients up into the arteriosclerotic zone, for now on the average they die at 64 years instead of 44 (1898-1914), with a duration of the disease so long, fourteen and four-tenths years, that any of them contracting it at 62 years or later must exceed the normal life expectancy or else injure our duration statistics. There have been four notably pessimistic articles. Dolger[1] studied 20 patients with diabetes of twenty-five years' duration, and among these there was not one who escaped vascular damage as shown by retinal hemorrhages and albuminuria or hypertension, or both, in varying degree. But his point of view is handicapped by his contact exclusively with patients of other doctors, yours and mine, doubtless poorly treated, because he graduated from the medical school only fifteen years ago. I like to think that when he has been in practice ten years longer and followed up his own cases intimately for a quarter of a century he will report more encouragingly. A second contribution stems from Rosenbusch,[2] a pediatrician in Zurich, who paints so dark a picture from his own clientele of 88 cases in childhood, of whom 24 were dead, that cardiovascular-renal disease appears almost inevitable. But I suspect that this writer did not have a fair show in the treatment of his children. Reading between the lines, I judge that often insulin and food were deficient and their family background in many instances was not conducive to health. Chute[3] of Toronto described 123 cases in childhood in which diabetes developed prior to 1932. Of these 52 subjects were living, 58 dead and 13 untraced. Of the 29 who survived twenty years, 24 were living. These persons showed pronounced evidence of degenerative lesions, arteriosclerosis, albuminuria and retinitis. These complications are present to a lesser degree in the group surviving fifteen years. The conclusions of Dr. Priscilla White and her associate[4] on detailed investigation of 220 patients among 387, with the disease for twenty or more years and with onset in childhood before the age of 15 years, were appalling, because only 17 were free from vascular disease.

On the optimistic side of the ledger is the fact that in 17 cases of childhood diabetes there was no evidence of arteriosclerotic degenerative lesions as revealed by studies of the eyes by ophthalmologists, vessels by roentgenologists and careful physical examinations by us. Moreover, there are at least 4 patients with onset in childhood who, after twenty-five years of the disease, are likewise perfect and to whom a Victory Medal, designed by Amelia Peabody, has been awarded. When one considers that these are patients with onset antedating insulin therapy or in the first one or two years of its use, when diets were notoriously deficient in carbohydrate and calories, who can gainsay that succeeding statistical investigations will reveal a brighter picture? An analysis of the treatment in these Victory Medal cases will be published, and it is hoped that there will be many other patients to whom the medal can be granted by the Diabetic Fund. Suffice it to say now that thus far the medalists have been patients who have carefully observed treatment, often meticulously, and have had

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Read before the Section on Internal Medicine at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

[1] Dolger, H.: Clinical Evolution of Vascular Damage in Diabetes Mellitus, Bull. New York Acad. Med. **22:** 482-483, 1946.

[2] Rosenbusch, H.: Prognose und Spätkomplikationen des Diabetes mellitus im Kindesalter, Basel, S. Karger, 1945; Ann. pæediat. **164:** 225 and 281, 1945; **165:** 12, 1945.

[3] Chute, A. L.: Survey of Patients with Juvenile Diabetes Mellitus, Am. J. Dis. Child. **75:** 1-10 (Jan.) 1948.

[4] White, P., and Waskow, E.: Clinical Pathology of Diabetes in Young Patients, South. M. J. **41:** 561-567, 1948. White, P.: Arteriosclerosis and Diabetes with Onset in Childhood, Proc. Am. Diabetes A., to be published.

most favorable home surroundings. Boyd and Jackson[5] from Iowa City, with a smaller number of cases but with most detailed studies, found the carefully controlled patient the one most complication free. This thesis for years has been supported by Allen.[6] At any rate, it is evident that diabetes in childhood is not to be a modern Sodom and Gomorrah.

Gangrene is an outstanding complication of arteriosclerosis, and yet, in our series since the period 1922-1929, gangrene as a cause of death has dropped from 8.6 to 1.9 per cent in the period 1944-1948, and that in the face of the fact that the duration of the diabetes had increased five years. Gangrene is only one aspect of sclerotic disease, but is indicative of the condition.

Table 1.—*Increasing Duration of Life After Onset of Diabetes by Age Groups at Onset**

| Age at Onset, Years | Naunyn Era, 1898-1914 | Allen Era, 1914-1922 | Banting Era, 1922-1936 | Hagedorn Era, 1937-1943 | Charles H. Best Era, 1944-1948† |
|---|---|---|---|---|---|
| All ages | 4.9 | 6.1 | 9.6 | 12.7 | 14.4 |
| 0-9 | 1.3 | 2.9 | 3.2 | 10.3 | 19.1 |
| 10-19 | 2.7 | 2.7 | 5.5 | 11.1 | 15.4 |
| 20-39 | 4.3 | 4.9 | 12.2 | 17.5 | 18.8 |
| 40-59 | 7.0 | 8.0 | 11.0 | 14.0 | 16.0 |
| 50 and over | 4.4 | 6.4 | 6.6 | 8.9 | 9.1 |

* Diabetic Statistics, George F. Baker Clinic, prepared by the Statistical Bureau of the Metropolitan Life Insurance Company.
† Deaths reported through May 26, 1948.

A REVISION OF DIABETES STATISTICS AND WHAT IT SUGGESTS

The interpretation of diabetes statistics, cheerful as it is from some points of view, is misleading. It is said that diabetic patients live nearly three times as long now as did diabetic patients in the first fifteen years of this century, fourteen and four-tenths years instead of four and nine-tenths years from the onset of diabetes. That is far below the mark. First of all, this statement is based wholly on fatal cases and takes no account of living diabetic patients. For each patient with onset of disease in childhood who died of the disease (424) in the last fifty years there are 5 alive (2,235). Second, it forces into the diabetes hopper for computing averages all those older diabetic patients who were 62 years or more at onset whose life expectancy without diabetes is fourteen years or less. Moreover, the duration of life in the fatal cases in the first decade of life has now risen to 19.1 years, with similar increases for older persons (table 1). The duration of life of the older diabetic person advances, though far more slowly. In another fashion the improvement is shown by observing the falling percentage of deaths in the first five years of diabetes and the rising percentage for persons who have survived twenty or more years (tables 2 and 3).

Mr. Marks of the Statistical Department of the Metropolitan Life Insurance Company has not yet computed the present expectancy of life of diabetic patients for 1948, but two years ago it was approximately three-fourths that of the general population instead of two-thirds some seven years before. Therefore, in the interpretation of diabetic statistics, one should consider them by decades, with attention to life expectancy as well as fatalities.

CONTINUOUS SUPERVISION OF DIABETICS

More than 60 per cent (13.8 and 24.5) of my diabetic patients die between the fifth and twentieth year of their diabetes. This demonstrates where the present attack on the disease should be centered, namely, on those diabetic patients who have passed the early stage of the disease. In other words, we must follow up patients more carefully. They must be kept under continual observation. They must be asked to come back every three, four or six months. May I illustrate the necessity for this by a recent chance observation? On one floor of the New England Deaconess Hospital there were 27 diabetic patients. Their average duration of the disease was nine years. Excluding 1 child and 7 adults whose diabetes could be proved to have existed only one year, but which, from their original weights and their present status, undoubtedly must have lasted far longer, the average duration was thirteen years, and in this group the cause of admission was almost without exception gross lack of care. With ward hospital rates at least $9 a day and the shortage of nurses, think of the needless waste of money and of nursing time. This is what strikes me as the pressing problem in diabetes today—the necessity for a more careful follow-up of each patient. One must exercise care in the treatment of the diabetic patient during the entire course of his disease, when it begins and when it ends. What a future the doctor can have who will follow up his cases every few months. It is not so much to specify the frequency of the visits—whether every two, three, four or six months—as for the patient and the doctor to be in partnership, always in contact, the disease to be controlled and all untoward symptoms and signs noted promptly and rectified. I am not extolling now any particular type of treatment, but I am emphasizing the necessity to control the disease and prevent accidents. The life insurance companies will stimulate this follow-up procedure, because when a diabetic person wishes insurance, the physician will be asked how often his condition is checked.

Table 2.—*Length of Life After Onset of Diabetes; 9,554 Deceased Patients**

| | Percentage of Total | |
|---|---|---|
| | Less Than 5 Years | 20 or More Years |
| Naunyn, 1898-1914 | 66.8 | 1.8 |
| Allen, 1914-1922 | 53.9 | 3.1 |
| Banting, early, 1922 | 40.7 | 4.8 |
| | 22.8 | 9.4 |
| | 15.7 | 14.4 |
| | 13.8 | 24.5 |

* Prepared by the Statistical Bureau of the Metropolitan Life Insurance Company.
† Deaths reported through May 26, 1948.

The diabetic patient's office visit should never be perfunctory and never for diabetes alone. It should include discussion of insulin, diet, exercise and rest, and a complete health examination, and except for the few frequent visits at onset and inauguration of treatment or rectification of some special intercurrent complication, all the clothes should come off. The examination should be so detailed that the patient can see that he is getting his money's worth—treatment of his diabetes and a health examination besides. Only 1.9 per cent of my patients now die of coma, and therefore, when they come to the office, the physician should protect them against the 98 per cent other causes.

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[5] Boyd, J. D.: Diet Therapy in the Nephritides and in Diabetes Mellitus During Childhood, J. Pediat. **10:** 243-253, 1937. Boyd, J. D., and Jackson, R. L.: Levels of Control in the Treatment of Diabetes Mellitus, J. A. M. A. **111:** 906-909 (Sept. 3) 1938. Boyd, J. D.; Jackson, R. L., and Allen, J. H.: Avoidance of Degenerative Lesions in Diabetes Mellitus, ibid. **118:** 694-696 (Feb. 28) 1942. Jackson, R. L.: Objectives in the Management of Children with Diabetes Mellitus, Wisconsin M. J. **47:** 587-590, 1948.

[6] Allen, F. M.; Stillman, E., and Fitz, R.: Total Dietary Regulation in the Treatment of Diabetes, New York, The Rockefeller Institute for Medical Research, 1919, pp. 573 and 645. Allen, F. M., and Sherrill, J. W.: Clinical Observations with Insulin: Use of Insulin in Diabetic Treatment, J. Metabolic Research **2:** 803-985, 1922. Allen, F. M.: Read before the Lackawanna County Medical Society, May 18, 1948; Pennsylvania M. J., to be published.

### THE MILLION UNKNOWN DIABETIC PERSONS

The Oxford Diabetes Survey[7] demonstrated that for the known diabetic person there was an unknown. How shall the million unknown diabetic persons in the country be recognized? My answer is simple and involves little expense. It is up to the doctor and the diabetic person. The unknown diabetic person is no elusive creature. He is the relative of a diabetic person, and more than 80 per cent of diabetic persons are fat. To find him or her all that is required is that 140,000 doctors examine the blood and urine of the relatives of their diabetic patients, especially those who are fat and above the age of 25 years, or have their patients screen the relatives by doing urine tests. This narrows the problem. Only one third of the people in the country are over 40, and yet persons above 40 constitute two thirds of the diabetic patients. It is infinitely cheaper to get that message across to the doctors and the patients than to attempt a multitude of expensive surveys, now that the United States Public Health Service has so beautifully blazed the way. If we doctors fail to do it, state medicine will, and the doctors will lose the fees and be taxed to pay the bill. In this search, already the specialists are aiding internists by detecting cases and dentists and chiropodists are constantly discovering suspects.

TABLE 3.—*Causes of Death of 9,554 Diabetic Patients**

| | Naunyn Era, 1898-1914 Percentage | Allen Era, 1914-1922 Percentage | Banting Era, 1922-1936 Percentage | Hagedorn Era, 1937-1943 Percentage | Chas. H. Best Era, 1944-1948† Percentage |
|---|---|---|---|---|---|
| Coma present | 63.8 | 41.5 | 8.4 | 3.2 | 1.9 |
| Coma absent | | | | | |
| 1. Cardiorenal-vascular | | | | | |
| (a) Arteriosclerotic | 17.5 | 24.3 | 53.8 | 64.8 | 69.1 |
| (b) Nonarteriosclerotic | 0 | 0.4 | 0.4 | 0.3 | 0.9 |
| 2. Infections | 7.4 | 12.7 | 13.7 | 11.0 | 7.5 |
| 3. Cancer | 1.5 | 3.8 | 8.7 | 8.8 | 8.6 |
| 4. Tuberculosis | 4.9 | 4.9 | 4.2 | 2.5 | 2.0 |
| 5. Other causes | 4.9 | 12.4 | 10.8 | 9.3 | 9.8 |

* Prepared by the Statistical Bureau of the Metropolitan Life Insurance Company.
† Deaths reported through May 26, 1948.

Many diabetic surveys, however, are still needed. We should know the percentage of diabetes among blind persons and among those with cataracts. In Arizona I found diabetes as frequent among the Indians as in the rest of the population, when one considered their sex, age, accessibility to medical attention and statistical tabulation. How does the incidence of diabetes in Iceland with its divergent diet and hours of daylight compare with that in the United States when evaluated under similar conditions and similar methods? What is the incidence of diabetes in Guam, where arteriosclerosis is said to be almost nonexistent? We know that diabetes differs little in frequency between the Negroes and whites, if the blood and urine are tested. How is it in China? There are certainly diabetic Chinese in the United States. I see a large number. There were only 74,954 Chinese in the country in 1930, and in 1940 there were 2,513 in Massachusetts and 1,380 in Boston. By a survey of these it should be easy to learn how many are diabetic, and the data thus acquired could be applied to China as a whole.

In any study of the incidence of diabetes the data in table 4, compiled by the Statistical Department of the Metropolitan Life Insurance Company from the house to house canvass in the National Health Survey, 1935-1936,[8] should be borne in mind. Everyone concedes its inaccuracies, because it is not based on chemical analyses of urine and blood but on oral reports; yet until a better report is forthcoming, it shows that the age and sex of the population surveyed are important factors for a correct interpretation.

### DIET

Great advances have been and are being made. Few physicians advocate less than 150 Gm. of carbohydrate in twenty-four hours, and one would administer insulin if such an amount could not be tolerated without the occurrence of glycosuria and hyperglycemia. No one recommends that a diabetic person should become obese. The disease developed in Houssay's[9] toads, which were made susceptible to diabetes with alloxan, if all their food was given at one meal, but the diabetes did not develop in the toads when the same quantity of food was spread throughout the twenty-four hours. Groen's[10] normal dogs died if fed fat bacon exclusively. There is room here for many dietary modifications, and time will show which is the best.

### INSULIN

Insulin has made possible the improvement in diabetic treatment.[11] The 10 year old children in 1897-1913 had a mortality rate of 824 per thousand in a year, and this has dropped in 1939-1945 by 99 per cent. The 30 year old patients had a yearly mortality rate of 359 per thousand, and this has fallen by 97 per cent. Even the 50 year old and 60 year old groups show reduction in death rate of 75 per cent and 72 per cent, respectively. With such startling improvement in the quarter century since insulin was discovered, one wonders why it is not used more. I believe that at least 85 per cent of the diabetic patients at the New England Deaconess Hospital take it. Over and over again in our medical-surgical rounds at the hospital on Monday mornings, promptly at 8 a. m. (to which all are invited), it is asked, "Must a diabetic patient get coma or gangrene or become blind or pregnant, get a stroke or have an insurance examination before his or her diabetes is recognized and insulin started?"

TABLE 4.—*Ratio of Diabetes in the Population**

| Age | Male Patients | Female Patients |
|---|---|---|
| 0-14 | 1:2500 | 1:2500 |
| 15-24 | 1:1700 | 1:1700 |
| 25-34 | 1:1100 | 1: 900 |
| 35-44 | 1: 500 | 1: 300 |
| 45-54 | 1: 225 | 1: 125 |
| 55-64 | 1: 100 | 1: 50 |
| 65 and over | 1: 70 | 1: 45 |

* The magnitude of the Chronic Disease Problem in the United States, Division of Public Health Methods, National Institute of Health, United States Public Health Service, 1938.

Every few years there is an improvement in insulin, and surely all possible improvements have not yet been made. I have high hopes for the new modified protamine zinc insulin (NPH50) which we shall test in our diabetic camps this summer, because it is supposed to combine in one bottle the advantages of a short-acting and long-acting insulin. At present patients with diabetes of long duration are apt to take the regular insulin and protamine zinc insulin by separate injection in the morning and, if the condition is severe, often 4, 6 or 8 units before the evening meal.

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[7] Wilkerson, H. L. C., and Krall, L. P.: Diabetes in a New England Town, J. A. M. A. **135**: 209-216 (Sept. 27) 1947.

[8] The Magnitude of the Chronic Disease Problem in the United States, Division of Public Health Methods, National Institute of Health, United States Public Health Service, 1938.

[9] Houssay, B. A., and Martinez, C.: Experimental Diabetes and Diet, Science **105**: 548-549, 1947.

[10] Groen, J.: An Experimental Syndrome of Fatty Liver, Uric Acid Kidney Stone and Acute Pancreatic Necrosis Produced in Dogs by Exclusive Feeding of Bacon, Science **107**: 425-426, 1948.

[11] Longer Life for Diabetics, Statist. Bull. Metrop. Life Insur. Co. **28**: 5-6, 1947.

Reactions should be avoided; but if a patient occasionally does not have a sign of a reaction, would that indicate that his diabetes is well controlled? For some patients 3 to 5 Gm. of carbohydrate hourly is essential for safety, and it is easily supplemented with protein and fat. For those driving an automobile food should be taken every two hours, and even though the patient may not be driving a 10 ton truck he should act as if he had that responsibility.

Would not every doctor keep his patient sugar free the entire twenty-four hours if he could do so without exposure to an insulin reaction? I tremble for the patient who is told that he may omit insulin. Before I advise that a patient omit it in the future, I shall insist that he sign his name to a statement that he has been advised, as long as he lives, to test his urine after a meal and have a blood sugar test every three months.

## DIABETIC COMA

At the Massachusetts General Hospital, Dr. Reed Harwood told me recently, there has been no death in the last 41 cases of diabetic coma. At the New England Deaconess Hospital on our service we have just completed a series of 92 successive cases also without a death, making a total in the two institutions of 133 cases without fatality. There is no boasting in these results. They are simply facts, and the reasons are plain. In our group the results are in large measure due to the cooperation of physicians within 50 miles of the hospital who in nearly half of a large series of patients with coma administered insulin just before the patient was put into the ambulance for a quick ride to the hospital. We know that our patients, in a previous but also recent survey, receiving practically the same amount of insulin in three hours as they did in twelve hours formerly, showed a mortality rate of 1.4 instead of 14 per cent. Liberal doses of insulin, promptly administered, prevent deaths from coma. We consider diabetic coma to be a grave emergency; the resources of the laboratory and the staff, young and old, are marshaled for its relief.

Our method of treatment of diabetic coma is herein outlined:

## TREATMENT OF DIABETIC COMA

### First Hour After Admission

*Assign special nurse, experienced in coma treatment, for the first few hours.*

#### LABORATORY

1. *Urine.*—Examine for sugar, diacetic acid, albumin, coma casts and pyuria. Catheterize if necessary.

2. *Blood.*—Test for sugar and carbon dioxide content, with emergency report inside the hour. White blood cell count and nonprotein nitrogen also of value.

3. *Search for Complications*
   A. History to explain cause of coma
   B. Physical examination, noting particularly:
      (*a*) State of consciousness, type of respiration, pulse rate, blood pressure and rectal temperature
      (*b*) Look for soft eyeballs, dry tongue, dilated stomach, cold and mottled skin and impacted rectum.

4. *Insulin.*—100 units of crystalline insulin subcutaneously at once for adults, if blood sugar exceeds 300 mg. per 100 cc. and if the blood carbon dioxide content is 9 millimols per liter (20 volumes per hundred) or less. The dose would be proportionately less in cases of recent onset of diabetes or in young children. In cases with blood sugar between 600 and 1,000 mg., give 200 units additional, and with blood sugar over 1,000 mg., give 300 units additional. In patients in circulatory collapse, give preliminary additional doses of insulin intravenously.

5. *Gastric Lavage.*—Use large tube, aspirate completely and wash stomach with warm water with greatest care.

6. *Sodium Chloride.*—Give 2,000 cc. of isotonic sodium chloride solution intravenously and repeat if indicated by dehydration and blood pressure below 90 mm. of mercury. Avoid too rapid administration, especially in older patients.

7. *Warmth.*—Keep patient warm, yet avoid burns, as from hot water bottle.

### Second to Sixth Hour

Occasionally the gravity of the condition necessitates repetition of *first hour's total insulin in the second hour.*

8. *Tests.*—Repeat blood sugar and carbon dioxide determinations after three hours. For rising blood sugar give insulin 50 to 200 units, according to physician's judgment of prognosis.

9. *Fluids by Mouth.*—As soon as tolerated give 100 to 120 cc. per hour of broth, ginger ale, orange juice, tea or coffee, to be sipped by patient or spooned by nurse. If nausea and vomiting recur, withhold fluids orally for twelve hours (lavage stomach again if indicated) and then resume.

10. *Soft Food.*—Soft or liquid food such as oatmeal gruel, orange juice or milk diluted half and half with lime water, not to exceed 10 Gm. carbohydrate per hour.

11. *Enema.*—For cleansing and to relieve abdominal distension.

12. *Blood Pressure, Pulse and Temperature.*—Record blood pressure, pulse and temperature; note signs of improvement or the reverse.

13. *Urinalysis.*—Urinalysis for sugar and diacetic acid every hour. Record volumes.

### Sixth to Twenty-Fourth Hour

14. *Tests.*—Repeat blood sugar and carbon dioxide determinations and give insulin, 50 to 200 units, if blood sugar and carbon dioxide levels are not improving.

Insulin (crystalline) may now be given according to results of urine tests every one to four hours if fall in blood sugar has been satisfactory.

| If test is— | Red | Orange | Yellow | Green | Blue | |
|---|---|---|---|---|---|---|
| Give— | 20 | 16 | 12 | 0 | 0 | units |

15. *Urinary Output.*—Observe this closely and note with alarm any sign of anuria. Treat with 1,500 cc. of isotonic sodium chloride solution intravenously if shock is persisting. Repeat as necessary. For anuria, associated with hypochloremia, give 50 cc. of 10 per cent sodium chloride solution intravenously. Never give hypertonic dextrose solution to promote diuresis. Beware of producing excessive diuresis with consequent loss of base, especially of potassium.

### Second Day

16. *Soft Food.*—Diet: carbohydrate 100 to 150 Gm., protein 50 Gm. and fat 50 Gm.

17. *Protamine Zinc Insulin.*—Protamine zinc insulin should be given, supplemented by crystalline insulin in small to moderate doses before meals, as indicated by results of blood sugar and urine tests.

### Third Day

18. *Diet.*—Patient should gradually return to the standard diabetic diet for age and weight with carbohydrate 150 to 200 Gm., protein 60 to 100 Gm. and fat 60 to 120 Gm. daily.

As there have been no deaths in the last 92 cases, I see no reason to change the method of treatment. Particularly I would call attention to its simplicity, the absence of use of dextrose or alkalis. Thus far the employment of potassium has not been necessary, and, in fact, until patients with diabetic coma treated without dextrose have been shown to need it, I hesitate to give advice for its use except in those clinics where quick tests for potassium are available.

### TRANSMETATARSAL OPERATIONS

Several lessons are to be learned from the unpublished report of my colleague, Howard F. Root,[12] on one hundred and seventy transmetatarsal operations on our diabetic patients apart from the excellent results which the surgeons Drs. Leland and John McKittrick, Dr. Theodore Pratt and Dr. Clifford Franseen have obtained. Six out of seven operations have been successful, and in many of the cases this type of operation has saved an amputation above the knee and at the same time produced a useful foot. The duration of the diabetes was nine years in the male patients between 51 and 60 years of age and fifteen years for the female patients between 71 and 80 years. The duration was ten years in the cases of successful treatment and fourteen years in the cases in which treatment failed. In the 6 patients under 51 years of age the average duration was fourteen years. Dr. Root concluded, "1. Mildness of the diabetes is no protection against gangrene. 2. Instruction in the care of minor lesions must be repeated. Do not walk on a sore toe. 3. The insensitive foot is the most dangerous and least resistant to infection. Lack of pain leads to procrastination eventually preventing the use of conservative treatment and conservative operation."

This group of cases stands out as composed of cases of mild diabetes of long duration in patients who had formerly been extremely obese. In 22 cases the average maximum weight was 245 pounds (111 Kg.); in 52, 208 pounds (94 Kg.), and in 50, 170 pounds (77 Kg.). In only 4 cases was the maximum weight under 150 pounds (68 Kg.). Only 13 of the patients had been on a measured diet and even on that for a small part of their diabetic lives. Likewise, there was a comparatively long period during which diabetes had existed without treatment by means of insulin. Glycosuria and hyperglycemia were not only present at admission but had probably been present long before the occurrence and development of the lesion which brought about admission to the hospital.

An average of 31 units of insulin as a maximum and 17 at discharge and 164 Gm. of carbohydrate with 1,764 calories were given the 111 patients for whom treatment was successful and 48 and 24 units, respectively, and 159 Gm. of carbohydrate and 1,652 calories to the 22 patients for whom treatment failed.

### CANCER

What recently gave me satisfaction in a review of a series of cases of cancer among our diabetic patients was the number who were either cured by operation or lived so long that death finally occurred from another cause. Perhaps statisticians of cancer mortality are observing this right along. It is what one ought to expect. Diabetic patients are constantly undergoing health examinations, and their doctors, therefore, should diagnose their cancers early. I hope that this avenue of investigation will appeal to the cancer seekers and that they will see the advantage of concentrating on diabetic patients so as to learn how treatment will be most efficacious in the earliest stages and from diabetic patients get cheer for other cancer sufferers.

Cancer as a cause of death has increased from 1.5 per cent in 1898-1914 to 8.6 per cent in 1944-1948. It is little more than half the cancer mortality rate, 15.8, for white persons ages 45 and over in the United States, but, as in nondiabetic persons, stands next to arteriosclerosis as a cause of death. Undoubtedly it would be higher than 8.6 per cent if diabetic persons lived longer.

### EDUCATION AND HOSPITAL CARE

Education of the diabetic person is a *sine qua non* in any method of treatment. Doctors cannot take over another million diabetic persons for instruction, however, unless they revise their methods. Most of the cases are office cases, and the time taken to explain all the ins and outs of diabetes is too great. We doctors must bring into our offices helpers whose medical training has been far less expensive and time-consuming than our own. Nurses and dietitians are not available at the prices the patients are able to pay. Therefore, we must turn to nurses' aides of one description or another. Instruction the patient must have.

Similarly we must have cheaper accommodations for those ambulatory patients who need introduction to diabetic treatment or its revision from time to time. With rising hospital costs, hospitals should grasp the point that systematization and a better classification of their admissions would lower the costs both for the patient and the public who voluntarily or by taxation are saddled with the bills. I expect to see this idea spread rapidly with mounting hospital deficits and decreasing revenues from community drives.

There are at least 15,000 diabetic children in the United States and 100,000 living persons the onset of whose diabetes was in childhood. Yet (shame on us) as yet only 1 child in 20 has an opportunity to go to a diabetes camp, where children get more benefit from their stay and are better treated than in a hospital ward.

### DIABETES FUNDS

In the talks I give my diabetic patients, I always tell them to see to it that the hospital nearest them is equipped to care for them in an emergency. A blood sugar report for the unconscious patient is just as valuable to him on Sunday afternoon as on any week day. The hospital will permit a woman to have a baby and recognize its duty to care for her and it on any day of the week, and the same rule should hold for an urgent diabetic admission.

The diabetic person having provided for his own safety, then I believe it is to his advantage to contribute to the furtherance of diabetic treatment and the promotion of research. Of course, if his own community is not enterprising enough to have a diabetes fund, how can I help telling about our own? A diabetic who will give a dollar a year for treatment and research in diabetes will be a better patient, and there are 1,000,000 known diabetic patients in the country. Finally, $1 from 1,000 diabetic persons is better than $1,000 from 1, because the thousand dollar donor may die, but most of the 1,000 diabetic dollar donors will live long and continue to manifest an interest in their disease.

### BLOOD SUGAR

A $5 charge for a blood sugar test is a dreadful deterrent to good treatment. One may not need many tests, but occasionally they are most revealing and reassuring. If the blood sugar test is combined with a medical visit and advice, that, of course, is a different matter. I think that laboratories should sell blood sugar books and blood sugar tests wholesale or establish bargain blood sugar test days or hours, so that patients are stimulated, encouraged and even enticed into knowing the more exact status of their diabetes—in fact, to better its control. The controlled diabetic person escapes diabetic coma and avoids many needless and embarrassing pitfalls.

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[12] Root, H. F.: Factors Influencing Success in Transmetatarsal Amputations in Diabetes, New England J. Med. **239**: 453-458, 1948.

### DIABETES AND EPILEPSY

In a recent review course of instruction in neurology which I was taking, I was much impressed by the analogies between diabetes and epilepsy. Indeed, epilepsy is constantly presenting itself in the differential diagnosis when an insulin reaction occurs, and, indeed, the incidence of epilepsy is greater in diabetic than in nondiabetic persons. It is said that there are 1,000,000 known diabetic persons and estimated that there are 1,000,000 unknown. The guess is made that there are 800,000 known epileptic persons and a corresponding number whose condition is undiagnosed. Treatment of epilepsy has notably improved with the use of phenobarbital diphenylhydantoin sodium ("dilantin") and trimethadione ("tridione"), but the specialists say that following up the treatment of the disease in routine visits yields astonishingly better results than simply dispensing the medication. Good old-fashioned doctoring of the whole condition of the patient and not of the episodes of grand mal alone, I understand, may lessen the latter toward the vanishing point. Nowadays I suppose that this would be called psychosomatic medicine, but truly that should always form a part of the day's work for the doctor. It is sort of thrown in "without money and without price." The family doctor is the doctor *par excellence* for epileptic and diabetic patients, and he should be made to feel it and help in the technics of treatment. In fact, any student who thinks that he wants to become a diabetes specialist should remember that today only 1.9 per cent of the diabetic patients die of their disease and therefore he must be up to date in 98.1 per cent general medicine if he expects to give his patients adequate care.

### PREGNANCY

Diabetic women may want to become pregnant, and if their husbands are nondiabetic and come from nondiabetic or only slightly diabetic families we have no right to interfere. But all will agree that they must keep under close supervision. Moreover, if, as Dr. Priscilla White [5] has shown, only 1 in 4 or 5 with calcified pelvic arteries can give birth to a living and healthy infant, it is only fair that the mother and father should be warned in advance of conception.

### URIC ACID DIABETES

I have always believed in the importance of alloxan diabetes as a great step forward in the elucidation of the disease. Alloxan can be made out of uric acid, which we all have in abundance. Bailey, Bailey and Leech [13] in our laboratory have shown that when alloxan is given to a rabbit the level of glutathione, another component of the body, falls. The two appeared antagonistic. By giving glutathione they hoped to offset the diabetogenic action of alloxan. This they were unable to do, but Lazarow [14] of Cleveland accomplished it. Naturally, therefore, I was greatly pleased to see the announcement of Dr. Mervyn Griffiths [15] of Canberra, Australia. He reported that blood glutathione can be reduced to very low levels by feeding rabbits a diet deficient in cystine and methionine. After six or seven weeks of such a diet the glutathione is at approximately one half its previous level. If uric acid is then injected intraperitoneally hyperglycemia and glycosuria develop in the rabbit, which last for five or six days, and this he terms uric acid diabetes. Control rabbits given uric acid failed to show these changes when the blood glutathione was not first decreased. The pathologic aspect of uric acid diabetes has not yet been reported. To this brief publication, only two pages in length, I attach great significance, even though it is based on experiments with only 4 rabbits. All of us have uric acid and glutathione in our bodies. Suppose that diabetic patients had adequate supplies of glutathione, would their disease advance less rapidly; could we in this way protect their relatives? The possibilities suggested by this announcement are unique, provocative and stimulating. Even if it is not glutathione, there might be some other chemical which could be employed which would deter some substance like uric acid from yielding alloxan or a product akin to it. Hitherto to escape diabetes one had to shun a diabetic heredity or obesity, but now an entirely new avenue for investigation is opened. Would it not be wonderful if something should come of it? At any rate, I predict that the treatment and methods of prevention of diabetes will change radically in the next few years. I believe that we are on the threshold of a new discovery, and I hope to live to see it.

## ABSTRACT OF DISCUSSION

**Dr. W. Wallace Dyer**, *Philadelphia*: Over the years, we have looked to Dr. Joslin and his group to lead the way in the furtherance of the diabetic patient's welfare. As the physiologist, the biochemist, the biologist and allied scientists have prepared the missiles, Dr. Joslin has helped set our sights, and today's communication is no exception. A million new diabetic persons to be discovered and started on treatment! This is certainly a challenge. I share Dr. Joslin's restricted optimism of avoidance of premature arteriosclerotic change in some of the long term juvenile diabetic patients. I cannot give a report as yet, but the department of ophthalmology at the University of Pennsylvania is engaged in reviewing cases of diabetes of twenty to twenty-five years' duration. I can only say now that my personal impression is that for the most part those patients who have been best controlled over the years have the least vascular damage. Until more convincing evidence is available than has been presented hitherto, I shall attempt in each patient to obtain normal blood sugar values throughout the twenty-four hours and to maintain a twenty-four hour negative reaction for sugar in the urine. Obviously, I do not secure this type of control in all of my patients, but an occasional failure due to my own inadequacies or the patient's lack of cooperation is no excuse for not trying. I am afraid that I cannot agree with Dr. Joslin that coma deaths have approached the vanishing point. That is not my experience on Dr. Dillon's service at the Philadelphia General Hospital. In my conversation with many of you during your visits to the booth, I gather that you too are still having coma deaths and they continue to represent a sizable part of your total diabetic mortality. No doubt, some of these deaths can be prevented by earlier diagnosis and earlier adequate treatment. In the severe coma patient especially, adequate treatment now includes administration of potassium controlled by the electrocardiogram as described by Bellet and Nadler recently in Philadelphia. The fact that in Dr. Joslin's cases 60 per cent of the deaths occur in the cases in which the diabetes has been of five to twenty years' duration emphasizes a point which we are all too likely to forget, namely, the diabetic needs continuous follow-up and supervision. It has been my experience that the new diabetic patient starts off with a great deal of enthusiasm and honest desire to maintain his diabetic regimen. As time moves on, he slips a little and gradually strays far afield. If the physician is present constantly to keep him on the track after the initial enthusiasm wears off, the broom will continue to sweep clean after it is no longer new.

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[13] Bailey, C. C.; Bailey, O. T., and Leach, R.: Alloxan Diabetes, Proc. Am. Diabetes A. **6**: 375-393, 1946.

[14] Lazarow, A.: Protective Effect of Glutathione and Cysteine Against Alloxan Diabetes in Rats, Proc. Soc. Exper. Biol. & Med. **61**: 441-447, 1946.

[15] Griffiths, M.: Uric Acid Diabetes, J. Biol. Chem. **172**: 853-854, 1948.

Dr. Henry T. Ricketts, Chicago: Dr. Joslin suggested that efforts to discover the cause of arteriosclerosis in diabetes may provide clues to the mystery of arteriosclerosis in general. While this may prove to be true, one should bear in mind that there are certain important differences between the total vascular picture in diabetes and that in senescence. Both conditions lead to changes in the arteries, but only diabetes damages the capillaries of the retina and the kidneys, likewise the retinal veins, in an almost specific way. Although one may produce sclerosis of the arteries in animals, as for example by feeding cholesterol, the peculiarly diabetic lesions of the capillaries and veins have not been produced by any experimental method. Dr. Joslin also referred to several papers describing the high incidence of serious vascular complications in young or middle-aged diabetic persons, originally "juvenile" diabetic persons, who have had their disease for twenty to twenty-five years. It is often stated that such complications occur regardless of the degree of control of glycosuria. This statement is difficult to support with factual evidence, for one cannot know with certainty the day to day level of control in patients whom one sees only once in one to six months, even though on the days one does seen them all seems well. The fact that Dr. Priscilla White has found vascular lesions in 93 per cent of her juvenile cases of long standing should in itself arouse our suspicion that poor control is a factor; it is notorious that the vast majority of these young unstable patients cannot be kept free of glycosuria for any considerable period of time. The future may prove that hyperglycemia and hyperlipemia play no role in these degenerative phenomena, but the evidence available today does not justify our discarding the possibility that these factors are important, and we should treat our patients accordingly.

Dr. Frederick M. Allen, New York: The maintenance of a normal level of blood sugar, which I was first to advocate, has been made easier by the discovery of insulin. By this method diabetic complications are preventable. For "furtherance of diabetic treatment," nobody typifies better than Dr. Joslin the value of individual personality, inspiration and initiative, in contrast to regimentation. Clinical evils have resulted when a college, which is necessarily a self-contained oligarchy, oversteps its educational function by usurping control of medical services for large populations. Diabetes furnishes one test of whether advances occur because of oligarchy or in spite of it. From a review of the overbalanced fat and carbohydrate diets, the recent deadly doctrine of leaving diabetes uncontrolled and the lax intermediate standards, it appears that the large institutions have been inferior not only to Joslin's clinic but to other smaller clinics or private practitioners in demonstrating successful prolonged control. In the related field of hypertension, which enters as a complication in many cases, especially among elderly diabetic patients, the oligarchic suppression of the treatment by salt restriction has likewise been responsible for a large unnecessary mortality rate during a quarter-century. Physicians should test for themselves the validity of the principle in both diseases; namely, that thorough physiologic control, especially in early stages, averts the later hopeless consequences.

Dr. Joslin: I appreciate all the words of those who have discussed the paper. We can take to heart what each one has said. The general unanimity about controlling diabetes, I think, is strengthened. We look to Dr. Ricketts for further studies in arteriosclerosis and to Dr. Dyer, because in Philadelphia now so many investigations of a new nature are going on in diabetic trauma. We are particularly fortunate, I think, in our coma cases. Our patients are certainly not as bad as those who come to many general hospitals. We know that, but I think that it is significant that at the Massachusetts General Hospital improvement has recently been striking. I would welcome hearing of patients free from degenerative vascular lesions after twenty-five years of diabetes, because, if we can find them and then see how they have lived, we could learn how to protect others. A question was put to me about the special insulin. I think that I will not discuss that, because all insulins are good. We could use any insulin. I treated diabetes for twenty-five years without it. I know what diabetes is without it and how thankful I would be for any insulin. The point is to use the insulin which you have and use it wisely and control the disease to the best of your ability.

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# OFFICIAL SYRINGE OF THE AMERICAN DIABETES ASSOCIATION

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In 1943 the Council of the American Diabetes Association appointed the Committee for Standardization of the Insulin Syringe. The need for this action by the Council arose from the following facts. After the discovery of insulin in 1921, and its use by the profession in the treatment of diabetes became general in 1923, many different types of syringes for the administration of insulin gradually appeared on the market. Each of these syringes was considered by the originator of each of the various designs to have certain advantages over any of those previously available. The number of different types increased until literally dozens of different models were being manufactured.

In general, the different syringes were of two types—those which carried graduations indicating various fractions of a cubic centimeter and those which carried graduations indicating the number of units.

Early in its history insulin was marketed in dilutions as low as 5 units per cubic centimeter, and later as high as 100 units per cubic centimeter. Those syringes which carried scales indicating fractions of a cubic centimeter used fractions varying from $\frac{1}{100}$ to $\frac{1}{4}$ cc. The most commonly used fraction was $\frac{1}{10}$ cc. The capacity of the syringes with this type of scale was most often 1 cc., but some had a 1.5 cc. and some a 2 cc. capacity. Some of these syringes showed the fractionation markings numbered numerically, and on some syringes the graduations of the scale were indicated in fractions of a cubic centimeter. These various types of scales were considered to have the advantage of being usable for whatever strength of insulin solution was being currently employed.

The other type of scale or marking indicated the dosage in terms of units. It was at first considered necessary to have a syringe scaled for each different strength of insulin, so that for a time when 10, 20 and 40 U. S. P. units per cubic centimeter were the available strengths of insulin, there were three different syringes with this type of scale on the market. It then seemed to be more economical to place several scales for the different strengths of insulin on the same syringe. As a result of this policy, there were syringes with as many as three different scales on each syringe. Later, when 80 unit insulin became available, and 10 unit insulin was withdrawn from the market, the two most commonly seen syringes of this type carried two scales on each syringe—either scales for 20 and 40 U. S. P. units per cubic centimeter or a second combination, scales for 40 and 80 U. S. P. units per cubic centimeter.

Various modifications in the kind and color of glass, such as green glass and blue plungers, were employed.

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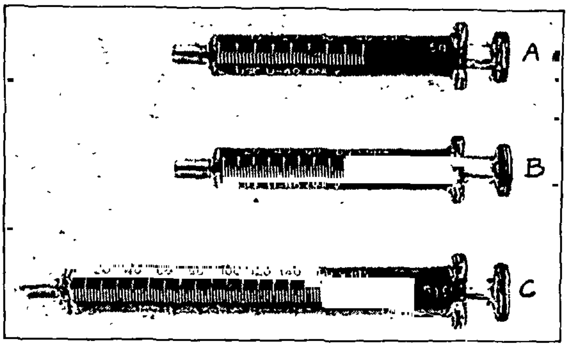
The Committee of the American Diabetes Association for Standardization of the Insulin Syringe.

In addition to the short standard length (usually 3 inches [7.6 cm.]) of syringe barrel, the longer, slender type of barrel was manufactured, similar in dimension to the "tuberculin" syringe.

This multitude of different kinds of syringes employed in measuring the dosage and in the administration of insulin was steadily increasing in numbers through applied individual ingenuity, when the Committee for Standardization of the Insulin Syringe was created in 1943. Such action was considered necessary by the Council of the American Diabetes Association because of tremendous confusion among the users of insulin regarding the measurement of prescribed insulin dosage. A few examples of such confusion will be cited. A patient employing a syringe with 1/10 cc. graduations, the graduations being numbered from 1 to 10, would frequently state his dose of insulin in units as the number of the fractionation mark, regardless of the strength of insulin being employed, so that 5 units might mean anything from 5 units to 40 units of insulin. When the scale was marked in fractions of a cubic centimeter, the patient often spoke of his dosage in terms of fractions instead of in units and frequently could not recall just what strength of insulin he used. Having left the insulin, and frequently the syringe, at home, neither the doctor nor the patient could be certain what dosage the patient was employing at the time of the visit, and the doctor would be at a loss to indicate to the patient the dose he desired to prescribe. Another frequent example of the confusion existing among those patients using a syringe on which the scale indicated units of more than one concentration of insulin arose from the common practice of patient's measuring insulin of 40 U. S. P. units per cubic centimeter on a 20 or an 80 unit scale, thus stating his dose of insulin to be twice, or half, the actual dose employed. Many variations of this error were possible. These are a few examples of the many errors patients were making and are still making, because of the great variety of insulin syringes still available on the market.



Official syringes. Model 1, for 40 unit strength only. The scale is marked in red enamel. Capacity 40 units. Model 2, for 80 unit strength only. The scale is marked in green enamel. Capacity 80 units Model 3, for 80 unit strength only. The scale is marked in green enamel. Capacity 160 units. (Manufacturers may obtain detailed drawings made to scale and typewritten specifications from the office of the American Diabetes Association, 1 Nevins St., Brooklyn 17, N. Y.)

Some physicians, acutely conscious of the many possible errors, attempted to minimize such errors by insisting that the patient bring with him, when visiting his doctor, both his syringe and his bottle of insulin. This gave the physician the opportunity to check under actual observation the dose of insulin being employed by the patient and also to demonstrate to the patient the actual dose of insulin which he prescribed.

Manufacturers were also dissatisfied with the many varieties of insulin syringes that it was necessary for them to create and to detail to the trade. Retail outlets were obliged to attempt to carry in stock a varying but large number of the different kinds of insulin syringes.

Patients taught to use insulin in one diabetes clinic or hospital, or by their personal physician, frequently found it impossible to replace a broken syringe with a similar one, because they were distant from the site of original purchase. They were then obliged to buy a syringe of another type, with which they were not familiar, and to accept the advice of some uninformed clerk or other person as to how to measure the prescribed dose of insulin on a new and unfamiliar syringe. Of course, there were some persons, whose minds were sufficiently mathematical and whose knowledge of the different strengths of insulin solution was adequate, who could compute their dose properly even on a syringe with which they had had no previous experience. The majority of patients, however, were not so mathematically minded, and hence a tremendous amount of confusion resulted.

The clinical results of this confusion led to poor treatment, varying from poor control of the diabetes, or even varying degrees of acidosis, to severe and even dangerous insulin shock.

Sufficient has been said to give the history of the insulin syringe and to emphasize the confusion and dangers arising from the great number of kinds and types of insulin syringes which had appeared on the market by 1943. It is probably safe to say that the number of models has increased considerably during the past five years. The Committee for Standardization of the Insulin Syringe presented on many occasions to the Council of the American Diabetes Association suggestions and recommendations for a standard type of syringe which could receive the approval and endorsement of the American Diabetes Association and thereby be considered "the official insulin syringe." Finally, in June 1947, the details and specifications of "the official insulin syringe," approved and endorsed by the American Diabetes Association, was accepted by the Council.

### DESCRIPTION OF MODELS

There will be three models of the official syringe.

*Model 1.*—Model 1 is to be used for insulin of 40 U. S. P. units per cubic centimeter of any kind (that is, regular insulin, insulin made from zinc, insulin crystals or protamine zinc insulin). It will have only one scale, reading 10, 20, 30 and up to 40 units, with suitable subdivisions, and will have a total capacity of 1 cc., or 40 units. The numerals and division lines on the scale will appear in red enamel, corresponding to the red color scheme officially adopted for the labeling and identification of all kinds of 40 unit strength insulin. This syringe should not be used for any strength of insulin except 40 units. This last designation will appear on the syringe.

*Model 2.*—Model 2 is to be used for 80 unit strength insulin of any kind. It will have only one scale, reading 20, 40, 60 and up to 80 units, with suitable subdivisions, and will have a total capacity of 1 cc., or 80 units. The numerals and division lines on the scale will appear in green enamel, corresponding to the green color scheme used to identify all kinds of 80 unit strength insulin. This syringe should not be used for any strength of insulin except 80 U. S. P. units per cubic centimeter. This latter designation will appear on the syringe.

*Model 3.*—Model 3 may be used for the measurement of 80 unit strength insulin of any kind, but is designed particularly for patients who need to use more than 80 units of insulin. It will have only one scale, reading 20, 40, 60, 80 and so forth, up to a total of 160 units and will have a total capacity of 2 cc., or 160 units. The numerals and division lines on the scale will appear in green enamel. This syringe should be used only for measuring a dose of 80 unit strength insulin and is necessary only when the dose of insulin exceeds 80 units. The syringes of 1 cc. capacity will have an approximate over-all measurement of 3 inches (7.6 cm.). The one syringe of 2 cc. capacity will have an over-all measurement of a little over 4 inches (over 10 cm.). Some manufacturers may choose to create official syringes which are more slender and hence longer than indicated herein. However, to be official the designated scale, the designated capacity and the color scheme must conform to the aforementioned specifications.

The label on the box containing the syringe is described as follows: Each syringe will be packaged separately in an appropriate box. The paper label on the outside of the box will carry the designation of the name of the manufacturer of the syringe along with the other data. The designation "For use with insulin of 40 unit strength only" will appear in red ink on the label on the box for the 40 unit strength syringe, and the designation "For use with insulin of 80 unit strength only" will appear in green ink on the label on the box for the 80 unit strength syringe. On the labels on the boxes containing any of these approved syringes which meet these requirements regarding the color and scale markings will appear this statement, "The enclosed syringe has a simplified scale which has been approved by the American Diabetes Association." By means of this description and by giving attention to the label on the box containing the syringe and the nature of the scale, a diabetic person should be able to obtain this officially approved insulin syringe by asking for it by name at any drug store where he seeks to make a purchase.

It is the sincere hope of the American Diabetes Association (1) that manufacturers of syringes for the administration of insulin will welcome this official syringe and will as rapidly as practical eliminate from their lines all other "insulin syringes" and restrict their production to this "official insulin syringe," (2) that manufacturers will publicize and promote to their retail outlets the advantages of this new syringe and its endorsement by the American Diabetes Association, (3) that the National Retail and Wholesale Druggists Associations, and their subsidiary state, district and other territorial organizations, will promote to insulin users this syringe to the exclusion of all other types and kinds of insulin syringes, (4) that teaching diabetes clinics and hospitals and all individual physicians will support the endorsement by the American Diabetes Association of this new insulin syringe by employing only this official syringe in teaching new users of insulin and will as rapidly as practical change the syringe used by persons under their direction to the official insulin syringe.

It is sincerely believed that such a cooperative attitude on the part of all those concerned with this problem will present to the diabetic public of America a united attitude and thereby cause much of the confusion and danger of the past to disappear.

# RELATIONSHIP OF THE ANESTHESIOLOGIST TO THE HOSPITAL

JAMES RAGLAN MILLER, M.D.
*Hartford, Conn.*

In opera it is customary for the composer to begin with an overture. Though it appears first, this overture is written last, for it serves not only to allow the audience to get comfortably seated, but it gives a preview of what is to come and an acquaintance with leitmotifs which thereafter can be heard with critical appraisal. I am going to imitate this method and tell immediately what is on my mind.

1. The anesthesiologist should be a member of the professional staff, and his relations to the hospital ideally should be on the same footing as other members of the staff.

2. If his income is in any way regulated by the hospital management, it should be with the advice and consent of a staff committee of senior physicians for which I suggest the name "prudential committee."

I hold that such a prudential committee should pass on all fiscal relationships between physician and hospital when income is derived from other than the customary fees. I suggest the word prudential because it is new in the hospital staff vocabulary.

The meaning of prudential which appeals to me is that given in Webster's Dictionary: "watchful of one's own interest." I would reject the connotation of selfishness and emphasize the meaning, also found in Webster, "sane and temperate judgement, and wisdom that conduces to moral virtue." Such a committee to be useful should be (1) senior in age but still active, (2) small in number, not more than three, and (3) trusted alike by staff and management. The best the staff has to offer is none too good for this job.

We need both principles and mechanisms. Principles must be discussed at the highest levels in the councils of our national organizations. Mechanisms must be perfected and put into action locally. It is as foolish to expect Chicago to solve all medical problems as it is to expect all wisdom and direction on political matters to come from Washington, and while I shall discuss principles it is particularly the local mechanism to which I wish to address myself.

I believe that successful adjustment of relations between hospital and staff is so important that it calls for the utmost of wisdom on both sides, and while this function may have been carried on as a part of the duties of a staff executive committee or some such busy arm of the staff, I think that this area of negotiations merits a separate committee.

## HISTORICAL DATA

Up to 1890 few other than physicians administered anesthetics. In 1889 Miss Dinah Graham, a graduate nurse at St. Mary's Hospital, Rochester, Minn., began administering anesthetics under the supervision of Dr. H. W. Stinchfield. Soon thereafter Miss Edith M. Graham joined her. Both of these nurses had other duties, and they were paid by St. Mary's Hospital. In 1893 Miss Alice Magaw succeeded Miss Edith Graham, who had married Dr. Charles H. Mayo. Miss Magaw is thought to be the first nurse to devote her entire attention to anesthesia. She was trained by Dr. Stinchfield and was employed by the Mayos.

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Dr. John S. Lundy provided the historical data.

Dr. Isabella Herb joined the staff in 1900, and the anesthesia department became a subsection of surgery, composed entirely of nurses. In 1906 Miss Magaw[1] reviewed over 14,000 instances of surgical anesthesia given during the previous twelve years. Dr. John Lundy became head of the section on anesthesiology in 1924. Dr. Ralph M. Tovell began the first fellowship, often called a residency, in 1929.

### MAYO CLINIC SETUP

The section on anesthesiology at the Mayo Clinic is now organized as follows: There are six staff physicians and thirty-one nurse anesthetists on salary, paid by the clinic and not by the hospitals. There are seventeen fellows in training who receive a stipend from the Mayo Foundation for Medical Education and Research of the University of Minnesota. Of these, seven are classed as first assistants and are paid an additional salary by the Mayo Clinic. From the beginning the patient has received one bill for medical and surgical care, including anesthesia. Sometimes extra charges are made by the hospital for unusual drugs, and arrangements for purchase and maintenance of apparatus vary slightly in the different hospitals connected with the clinic.

I have used the development of the service of anesthesiology at the Mayo Clinic, not to give a comprehensive review of what was going on in anesthesiology in the United States during this period, nor to imply in any way that the pattern of the Mayo Clinic can or should fit every situation. That is absurd. The community hospital in my opinion must provide suitable mechanisms for payment of fees for the superior services offered by trained anesthesiologists. I have used the Mayo Clinic experience to emphasize my thesis that the most important element in our present problem is not salaries or fees as such, but rather the control by physicians, by the staff, in this case by the clinic, and not by the hospital. Except in the beginning anesthesia at the Mayo Clinic has been administered and paid for under the control of physicians, not of hospital administrators or their trustees. This is the essential formula for the sound development of the specialty and of its capacity to serve patients.

### SOME CONSIDERATIONS

In training centers, such as university clinics and famous private clinics, young physicians who seek opportunities to develop in a specialty consider three important items: first, the possibility of obtaining a rich clinical experience; second, the opportunity for advancement, and, third, financial reward. It will be a sad day for us all when this order is reversed. It is inevitable that these considerations influence favorably the finances of some institutions, and the temptation is always at hand, as it is in all apprenticeships, that young physicians may be exploited. This is bad enough if one physician is enabled to profit unduly at the expense of another. *It is intolerable if such profits* accrue to nonprofessional persons, or even to nonprofit institutions, to pay for new facilities or to recoup losses in other departments of the institution. Physicians can rely on physicians to maintain quality of medical care even in the face of diminishing returns, but there is apprehension among physicians concerning the apparent eagerness of hospital management to derive profits from medical services in order that it may erase the red ink on their books in the strictly hospital service departments. Deficits should be borne by the community and not by special groups of physicians and their patients.

The problem before us comes into sharpest relief in the middle-sized community hospital, usually staffed by local physicians. Dr. McCuskey has shown that there are lacking 3,000 anesthesiologists to provide only one in each hospital. For the time being, therefore, many a small hospital, if its staff wishes to obtain the services of a trained anesthesiologist, must do so on part time, as they now do in the case of pathologists and roentgenologists. These skills must be extended from the larger institutions to make surgery safer for more difficult surgical risks. Here, certainly, is need for a prudential committee in each hospital.

In the smaller hospitals, busy staff physicians are at serious disadvantage in maintaining leadership in the affairs of the hospital in the face of full time administrators backed by state and national organizations. The argument of hospital management seems to run somewhat as follows, "You physicians have not organized this increasingly complicated medical care field. People are calling for such organization and we in the administrative world are not only able to organize your services but, as a matter of fact, we have already done so to an extent which you hardly realize." There has been no prudential committee to look after the interest of the staff physician.

This problem has received increasing attention by the specialist groups, by hospital associations, by Blue Cross and Blue Shield and by state medical societies. The prudent committee of the House of Delegates of the American Medical Association was empowered to study this problem and the action taken by the House was reported at the Annual Session in Chicago, June 1948. The Judicial Council has been studying anew the Code of Ethics of the Association in the light of present needs, and the problem under discussion is basically involved in that code.

### MASSACHUSETTS COMMITTEE REPORT

The best review that I have seen up to the time of writing was presented on Oct. 1, 1947, to the Council of the Massachusetts Medical Society by a committee, headed by Dr. Leland McKittrick, commissioned to study special services.[2] This committee was composed of representatives of the anesthesiologists, the pathologists, the roentgenologists, the Blue Cross, the Blue Shield, the hospital association and the Massachusetts Medical Society. It made a unanimous report, defining medical and nonmedical "services other than administrative, rendered by a registered physician directly or indirectly to or in behalf of an individual patient for the obtainment and interpretation of data, including consultation and advice, for the diagnosis, treatment and prevention of disease." I refer you to the full report for extension of this definition. This committee made the following recommendations for the establishment of proper relations between physicians and hospitals:

> That the medical costs of hospital care be separated from the nonmedical costs, as can be done by existing and accepted methods of cost-accounting, and that they appear thus separated on the statement submitted to the patient.
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> That bills for all medical services be rendered in the name of the physician or physicians performing the services.
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> That a basic principle in the establishment of charges should be that each department be self-supporting. This principle should

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[1] Magaw, A.: A Review of Over Fourteen Thousand Surgical Anaesthesias, Surg., Gynec. & Obst. **3**: 795 (Dec.) 1906.

[2] Report of Committee to Study Special Services, Council of the Massachusetts Medical Society, New England J. Med. **237**: 874 (Dec. 4) 1947.

be so applied that neither the hospital nor the physician rendering the service will exploit the patient or each other.

That fees for medical services collected by the hospital be established by joint action of a representative committee of the staff and the governing body of the hospital and including also the head of the department and the administrator.

That the basis of financial arrangement between hospital and physician may be salary, commission, fees, or such other method as will best meet the local situation, with due regard to the needs of the patient, the community, the hospital and the physician.

The *New England Journal of Medicine* commented on this report in part as follows:[3]

> So long as organized medicine uses its organization for the benefit of the patient and the improvement of its own standards and public relations, well and good. If, however, its collective power should be used, as could easily happen, to protect its members against reasonable, honest and decent competition even from without the profession, it is treading dangerously close to the less attractive paths of trade unionism.

### OTHER EXPERIENCES AND COMMENTS

When the chairman of the Section on Anesthesiology was brought by the administration of the Hartford Hospital to look over his prospective job, all of us who occupied senior positions on the staff were asked to meet him, to look him over and, I suppose, in turn to be looked over by him. He came to us as a member of our senior staff, though his salary was paid by the hospital. In 1936, precedents had not been set by large community hospitals for him to follow. He had no prudential committee to assist him in his financial negotiations, nor has he had such a committee to give him counsel in the years that have followed. Large community hospitals which are thoroughly committed to training of residents in anesthesia have not yet established mechanisms which might be used as a guide for organization of such departments. No staff committee understands the detailed fiscal relationships of hospital management and all the salaried physicians who are members of the staff. The same may be said of the roentgenologists, who with anesthesiologists divide the bill for roentgenographic services collected for them by the hospital.

I shall not discuss how the present customs came about, nor the unpleasant consequences which until decently adjusted will continue to retard Blue Cross and Blue Shield expansion. There is hope that these differences may be settled, for the Massachusetts agreement gives a large measure of satisfaction. Blue Cross organizations have indicated that medical services now covered by their contracts will be transferred to Blue Shield when medical care contracts are widely sold, so that such transfer will not deprive large numbers of their clients of benefits to which they have become accustomed. The medical profession should always have clear control of all medical aspects of these plans which will be possible after this transfer. Anesthesiologists should all work to hasten that adjustment and make sure that it is enduring.

Some years ago Dr. Frank Lahey, in his address as president of the New England Surgical Society, warned that physicians must pay more attention to the management of hospitals or they will find themselves managed by hospitals. What I have told you of my own hospital experience can be repeated with variations by staff members of the community hospitals all over the country. It is not too late, however, to assert by deeds as well as words that a hospital without a staff is but a hotel. I agree heartily with Dr. Lowell Goin, who said, "It is the prerogative of the medical profession to decide on hospital policies when those policies concern the field of medical care;" and ". . . the trustees of hospitals included in reputable nonprofit group hospitalization insurance plans should be told what they must and must not do when the subject under discussion is the dispensing of medical services."

### COMMENT

Enunciation of principles, important as that is, is not enough. Anesthesiologists must develop the mechanisms to make those principles effective, and I suggest the prudential committee of the hospital staff as being a useful mechanism for this purpose. This committee should be trusted by management and staff alike. Its sole duty should be responsibility for the interests of the hospital, the staff and the employed physicians in the adjustment of their fiscal relationships and in wisely developing them to meet the needs of the community in the changing and complicated world in which we live. If every hospital could have such a prudential committee, endowed with foresight, temperate judgment and wisdom that conduces to moral virtue, we should move forward with confidence, knowing that we can adjust our present difficulties and meet successfully the calls of the future.

*179 Allyn Street.*

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[3] The Laborer and His Hire, editorial, New England J. Med. **238**: 640 (April 29) 1948.

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# FUNCTIONS OF THE AMERICAN BOARD OF ANESTHESIOLOGY

## Past, Present, and Future

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Anesthesiology—the study and practice of the art and science of anesthesia in all its forms and all that pertains thereto—began in 1846 as the clinical administration of one agent by one method for one purpose, the relief of pain. As a technical procedure it was relegated to anyone available at the time and place of administration. This drew the condemnation of John Warren,[1] President of the American Medical Association, in his address at Cincinnati in 1850. He said then that the administration of the anesthetic should be in the hands of a properly qualified assistant.

Anesthesia was accepted promptly by physicians the world over, but, in the United States, recognition as a specialty came only after ninety years. Early physician anesthetists were listed as surgeons, special interest: anesthesia. The Long Island Society of Anesthetists, founded in 1905, was composed of graduate physicians, licensed in New York, and most of them were members of the American Medical Association. Many of them were not surgeons, and, the age of specialism in medicine having dawned, they became directory conscious and desired official recognition of the equality of their specialty in education, ethics and practice.

Recognition of special qualifications in most organized societies is by means of committees or examinations. During the 1931 Congress of Anesthetists, held in New York, a committee was established to seek a proper means to designate a specialist in anesthesia. After two years of failure of twelve well qualified

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Read before the Section on Anesthesiology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

[1] Warren, J. C.: On the Use of Anaesthetics, Tr. A. M. A. **3**: 385-387, 1850.

anesthetists to arrive at a solution, the New York Society of Anesthetists established in 1933 a Committee on Fellowship to attempt certification of anesthetists truly qualified as specialists. This group worked, by permission, copying the constitution and plans of the American Board of Urology. This work led to the formation on June 2, 1937, of the American Board of Anesthesiology, an affiliate of the American Board of Surgery. In 1941, it was recognized as a separate major specialty board. Experience gained by the Committee on Fellowship was of value in establishing regulations and examinations for the board.

The composition of a board is of utmost importance. Geography, finance, physical status, personality, educational background and type of practice must be weighed. All clinicians, all research workers or all professors would make a one-sided inadequate board. Time away from or in addition to regular work, to the extent of four to six weeks per year, is a consideration. Six year terms appear satisfactory. It takes an average of three years for new members to adjust to the routine, learn the regulations of the board and become useful members. To render sound judgments, fair decisions and accurate impartial investigations of irregular or unusual situations requires full attendance and open-minded and reasonable attitudes. These attributes have characterized the specialty boards in general and the Board of Anesthesiology in particular.

Several national organizations select three representatives (one of whom is elected a "member" of the Board), who present personal information of local problems from various parts of the country at the board meetings. Effort is made to avoid more than one representative from a city, but this is not always possible. The first board was composed of three representatives each from the Section on Surgery of the American Medical Association (there was no Section on Anesthesiology in 1937), the American Society of Regional Anesthetists and the New York Society of Anesthetists (which was originally called successively the Long Island, New York, then American Society of Anesthetists, now known as the American Society of Anesthesiologists, Inc.). The present board has ten members, four from the Section on Anesthesiology of the American Medical Association, four from the American Society of Anesthesiologists, one from the New England Society of Anesthesiology and one from the Section on Anesthesia of the Southern Medical Association. They came from Los Angeles; San Antonio; Rochester, Minn.; Hartford, Conn.; Cleveland; Providence, R. I.; Philadelphia; Tulsa, Okla.; Madison, Wis.; New York; Boston, and Reading, Pa.

The basic requirements of all specialty boards are similar or identical. Briefly they are: (1) graduation from a grade A medical school in the United States or Canada, (2) minimum of one year of internship in an approved hospital of the United States or Canada, (3) special training in the specialty, (4) membership in the American Medical Association, (5) time (five years) in the specialty and (6) examination in various forms.

The anesthesia board had no founders' group, all candidates having to meet identical standards. Standards were raised from a suggested period of supervised teaching, through a required one year, eighteen months and at present two years of required residency training. Preceptorship, though not advocated, may be substituted for approved residency time. This form of instruction varies with time and material facilities. Unlike approved residencies, which are relatively permanent, this form of training is limited to one student and one preceptor, mutually acceptable, and in each instance approved in writing by the board on recommendation of the Committee on Residency.

During the war, credit for service in anesthesia was given to a maximum of one year as residency training. This was an error, as too many could not satisfy the examination requirements without the supervised training. It is evident that quantitative clinical experience does not substitute for the didactic instruction, the conferences, seminars, literature sessions and laboratory research that comprise the special training now required and essential to a specialist certified in anesthesiology. Because of the war, other restrictions, as "grade A" and "United States or Canada," were occasionally set aside. This was only after due consideration and investigation, but it proved to be one of the pitfalls of expediency in emergency.

Here is a good place to correct some misstatements. Abe Martin intimated that often "it ain't what you don't know, but what you know that ain't so, that makes so much trouble." No specialty board is a union, and it does not issue degrees or licenses for any special practice. It merely sets standards for those who voluntarily seek its designation as "specialist." The boards do not approve or withdraw approval of residencies; this is the function of the Council on Medical Education and Hospitals of the American Medical Association, which makes the inspections and final decisions. It does confer with the specific board concerning specialty items, and the College of Surgeons is also invited to submit recommendations. The American Board of Anesthesiology has never required that heads of approved residencies must be specialists certified by the board. Some certified specialists have no special ability or desire to teach. This board knows that there are hundreds of physicians who are factually qualified to practice anesthesiology who would not or could not seek certification by this board.

If there were no human factors and no deviation possible from the printed regulations, then a machine could be set up to receive the credentials and fee, exhibit the examinations, evaluate the answers and issue a signed sealed certificate of qualification. Fortunately, rules made in good faith may for adequate reason be variously interpreted by the use of common sense, vision and integrity on the part of the members comprising the board.

This board is aware that its 100 per cent requirement of limitation is not always followed. It is not a sensible regulation from the point of view of education. It was adopted through expediency. Certificates have been withdrawn for failure to observe it. No candidate is put through an F.B.I. process, but the board does have an extensive and very efficient system of checkup on credentials. To date no person has been permitted to take the examinations if any member of the board knows that he does not comply with the 100 per cent limitation clause. No amount of rumor will institute revocation proceedings, but one single written complaint necessitates immediate and thorough investigation.

Examinations are abominations to all concerned. They have been used in some form in all known human endeavor to ascertain true fitness for special designations indicating proved qualities, and this board has found no substitute. It has, therefore, set up a system of three types of examination—written, oral and practical. One application covers all, and advancement is automatic on successful completion of a preceding part.

For the fee (currently $100), the candidate has two calendar years to pass each part; that is, he may have three chances at each examination, as today and one year and two years later. If the candidate should fail three times, he is required to file a new application and fee and begin again under the rules then in effect.

The written examinations were of the essay type until 1948, when a change was made to the multiple choice, International Business Machines type of examination. They are designed to cover basic science as applicable to anesthesia. The subjects or categories are anatomy, physiology, pharmacology, pathology, and chemistry and physics. The new type examination speeds the reports by nearly five months. Former reports were made by the three examiners to the secretary's office on candidates known to them only by number; the average was ascertained in the secretary's office, and no examiner knew the grades given by the other examiners. Where there was a variation of 20 points, books were sent to additional examiners. This system prevented favoritism, schools or indigestion from prejudicing a final mark. Candidates were notified only of "pass," "fail" or "condition," with no grade given. However, it was strictly observed that 75 per cent was required to pass. All questions of the essay type used in examinations were published at some time in *Anesthesiology*. The new type questions will not be published. Written examination may be taken after completion of two years of supervised training. Written examination is held the third Friday of each January, at ten different centers.

Oral examination is given only after completion of all the remaining requirements, as American Medical Association membership (through the County Society) and five calendar years of practice (including the special training period). The candidate meets all board members at the briefing session preceding the examination. He then appears before four regular and four associate examiners, two in each of four rooms. Discussion of each examination is held by the whole board and the associate examiners. Consideration is given to factual answers, attitude in answering and general impression made on all examiners. This method teaches the associates the plan of oral examination and prepares them as prospects for future board membership. Some have questioned the fairness of the examinations, but those willing to serve in them have been high in their praise after participation in the proceedings. A recent and valuable innovation is the "gripe session," conducted by a board member who has not participated in the examination. He receives voluntary verbal complaints or suggestions on any phase of the examinations, which makes the examinations following such sessions more valuable.

Those who fail are urged to confer with members of the Examinations Committee, who will go over their papers or oral reports. Nearly all have left these conferences convinced that they were fairly and properly treated. Errors can occur, and the board is prompt to make corrections if errors are proved. All candidates are assured that the board does not wish to set excessive standards, but, in the applicants' own interest, high standards must be maintained. Oral examinations are given during the third week of each October.

Practical examinations are given in all instances when no member of the board has observed the candidate work or the board does not know the local situation in relation to the problems of the anesthetist. It consists of a survey of clinical and theoretical work, of the equipment and local attitude of colleagues and associates in the candidate's own location or operating room. Report is made to the board, evaluated and, if satisfactory, is followed by certification.

Variations in the material covered and in the accepted answers caused an appeal for a fixed curriculum. Local working conditions do not permit a formal rigid pattern to be established in all centers. There is available through the American Society of Anesthesiologists and the American College of Anesthesiology a booklet, "Anesthesiology," giving in concise form the major requirements and reference texts. It will be sent on request to members of those groups or for a small charge (25 cents) to nonmembers. The outlines or patterns for three types of approved residencies are included in the booklet. They are adapted for a large hospital, a small hospital and a medical school-hospital combination department.

Residency approval forms should be requested from the Secretary of the Council on Medical Education and Hospitals of the American Medical Association, Chicago. Residency approval may be temporary or full. Full approval is in effect until the next inspection, at which time it may be renewed or withdrawn. Temporary approval is for an indefinite period, until the first inspection has been made. Termination of residency approval is on notice from the Council. Adequate opportunity is given for the hospital and for the residents to correct any unsatisfactory situation. When there are no satisfactory candidates from an approved residency, review by inspection should be expected. Cooperation with the Council has been prompt, full and satisfactory. Lists of 152 approved hospitals and 487 residency approvals are to be found in the May 1, 1948, issue of THE JOURNAL.[2] Some 35 additional hospitals have been recommended for approval since May 1.

Extra written and oral examinations may be given at intervals of six months with the regular examinations. Practical examinations are given at any time convenient for examiners and examinees. The certification of 424 physicians, establishment of 177 approved residencies, a Section on Anesthesiology in the American Medical Association, recognition in the House of Delegates, the statements of the College of Surgeons, the American Hospital Association and other national medical organizations that the practice of anesthesiology is the practice of medicine, all this with the growing acknowledgment of the increasing efficiency in this field of medicine by all physicians, and through them by more efficient, pleasant and safer service to the patients, is a certain strong indication of a favorable future for the work as instituted, carried on and projected for the years to come by the American Board of Anesthesiology.

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## ABSTRACT OF DISCUSSION

DR. PHILIP D. WOODBRIDGE, Reading, Pa.: The tendency of hospitals to require that every chief must be a certified specialist has put the boards almost in the position of being hiring halls for hospital staffs. This is an improper and unwelcome function for them. The boards would do well to educate hospital management to alter this stand. In the practical examinations only two candidates have failed thus far. These examinations should test the candidate's mastery of the art of anesthesia. Instead, they have become mainly an inspection of his working conditions. The nature or the name of the examinations should be changed, or they should be dropped. In several cases equivalent rather than identical standards have been used, in that written examinations were omitted and oral examinations became a formality. It is felt that long successful experience is evidence of intangible knowledge and skill, fully as important as the factual knowledge that can be tested in an examination. The recently adopted multiple choice type of written examination appears to test the candidate's detailed factual knowledge rather than his intelligence. Both should be tested if the value of certification is to be maintained. Membership in the American Medical Association is a requirement for certification. This smacks of trade unionism. A candidate should not be forced to join any organization in order to be declared a competent specialist. Concerning the 100 per cent limitations: The certified specialist may make a physical examination of a patient, provided that the patient is scheduled for operation, but if instead the same examination were to be paid for by an insurance company, he would be subject to revocation of certification. This seems somewhat parallel to the arrogant jurisdictional rulings of labor unions. It would be advantageous for the anesthesiologist to put in some time on cardiology, bronchioesophagology or neurology, but he is prevented from doing so by this restrictive requirement. Dr. Kirklin in 1941 wrote: "The requiring of one hundred per cent is excessive and unfair. . . . If the major portion of [a candidate's] practice is in his special field, he should be deemed eligible." One result of this requirement has been that a second certifying board, the American College of Anesthesiologists, has been set up, with a 50 per cent requirement. It is unfortunate that there should be two certifying boards in one specialty. It would seem better for the two to merge their functions into one board.

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[2] Arestad, F. H.; Reid, E. K., and Leveroos, E. H.: Approved Internships and Residencies in the United States, report of the Council on Medical Education and Hospitals, J. A. M. A. **137:** 23-89 (May 1) 1948.

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# REHABILITATION AND GENERAL PRACTICE

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The practice of rehabilitation for the general practitioner, or for any physician, begins with the belief in the basic philosophy that the doctor's responsibility does not end when the acute illness is ended or operation is completed; it ends only when the patient is retrained to live and work with what is left. This basic concept of the doctor's responsibility can be achieved only if rehabilitation is considered an integral part of medical service. Any program of rehabilitation is only as sound as the basic medical service of which it is a part. The diagnosis and prognosis must be accurate, for it is on them that the feasibility of retraining is determined.

In addition to the general diagnostic studies, the medical evaluation of orthopedically handicapped persons must include muscle tests, tests of joint range of motion and tests for the inherent needs in daily living. In the Rehabilitation Service at Bellevue Hospital, a check list of ninety-six items is used to determine these factors.[1] They include: first, bed activities, such as moving from place to place in bed, and the ability to sit erect; second, toilet activities; third, eating and drinking; fourth, the ability to dress and undress, such as tying shoe laces, manipulating buttons, zippers and other fasteners, and applying and removing braces; fifth, hand activities, for example, winding a watch, striking a match and using various door knobs and latches; sixth, wheel chair activities, getting from the bed to the wheel chair, the wheel chair to bed and in and out of the bathtub, and, finally, elevation activities, which include the needed abilities for walking, climbing and traveling.

At first glance, such a test list sounds formidable and time consuming, but in reality the information may be easily obtained by a therapist, nurse, a well trained volunteer or a member of the patient's family. From the special check sheets used for charting the activity accomplishments, information is readily available both on the status of the patient at the time of admittance and his progress while undergoing rehabilitation.

The use of such a check list is particularly helpful if personnel are not available to do definitive muscle testing and accurate range of motion determination, for the daily activities test can be completed in the hospital, the physician's office or the patient's home. The subsequent training program is designed to teach the patient the various skills and activities which he cannot perform.

In Bellevue Hospital, after the basic medical work-up and the range of motion, muscle and needs of daily living tests, the physician, in conference with the therapists and other staff members, prescribes for the patient a full day's program, running from 9 a. m. to 4 p. m. These prescribed activities include training in the ambulation and elevation rooms and the remedial gymnasium, occupational therapy, physical therapy, speech therapy or any other activity which may be helpful in meeting the specific needs of the patient.

In a comprehensive rehabilitation program, vocational guidance specialists should also be available for guidance and testing, in order that the patient may be started on a prevocational exploratory and work-testing program as soon as it is medically feasible. However, good basic rehabilitation can be carried out with the personnel available in the ordinary general hospital, if such a program is properly organized, supervised and prescribed by the physician.

The rehabilitation of hemiplegic persons is a typical example. There are a number of simple progressive procedures in the rehabilitation of hemiplegic patients, one of the commonest disabilities seen in general practice. In the early stages of treatment, the following procedures should be instituted to prevent deformities:

1. Footboard or posterior leg splint to prevent foot drop
2. Sand bags to prevent outward rotation of the affected leg
3. A pillow in the axilla to prevent adduction of the shoulder
4. Quadriceps setting to maintain muscle strength

All of these procedures are relatively simple and require no special equipment. Their use, however, will prevent crippling anatomic deformities and hasten the rehabilitation of the patient.

The next procedure indicated is the institution of pulley therapy.[2] This can be done very simply with a small pulley attached to a gooseneck pipe over the head of the bed, using the ordinary clothes line rope with a 1 inch (2.5 cm.) webbing for the hand loop. With the stretching and passive exercise provided by pulley therapy, the range of motion can be increased and adhesions prevented.

Pulley therapy has the advantage over the usual stretching exercises that are done passively, for the patient knowing his own pain threshold will proceed to fully tolerated motion much more quickly. Pulley therapy can also be used to aid in the reestablishment of reciprocal motion patterns.

The patient, at this stage, should be encouraged to sit erect in order to reestablish balance. Speech therapy,

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Read in the Session on Physical Medicine of the Section on Miscellaneous Topics at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

[1] A Test for the Activities Inherent in Daily Living, New York, Bellevue Hospital.

[2] Deaver, G. G., and Peterson, K.: Pulley Exercises to Increase Joint Movement, Arch. Phys. Med. 27: 17 (Jan.) 1946.

if indicated, should be instituted at this time. In the absence of a trained speech therapist, the speech reeducation can be started under medical supervision by any teacher who has had some experience in this field. In aphasic conditions, it is well for the physician to point out to the patient and family the nature of the condition in order that the inability to use the tools of language may not be interpreted as loss or diminishing of the ability to think and reason.

The next progressive stage in retraining hemiplegic persons is ambulation, which should be started by:

1. The practice of balance in the standing position progressing to parallel bars
2. The teaching of a heel and toe gait to minimize clonus and to reestablish normal walking habits and reciprocal motion
3. Use of a short leg brace, which will be needed in approximately half of all cases to correct foot drop

All of the equipment for training in ambulation is simple and readily obtained by the general practitioner. If parallel bars are not available, two kitchen chairs may be substituted.

In the advanced stages of retraining, ambulation is continued with:

1. Instruction in crutch walking, starting usually with the alternate four point gait
2. Teaching elevation, stressing climbing steps, curbs, stairs and ramps

Concurrently with training in ambulation, attention should be given to retraining in the activities of self care and daily living.

Obviously the physician himself cannot undertake the actual administration of the retraining, but the therapist, nurse, volunteer or even a member of the family can conduct the activities under his supervision. With such a program, many of the complications usually following apoplexy can be avoided and a great deal of time and ability salvaged.

A similar program of activity may also be started early with many arthritic patients. Passive and mild active motion, even when evidence of the acute disease has not completely subsided, can be instituted with caution, gradually increasing to a full program of activity as indicated by the subjective and objective symptoms. The rapidity with which the program may be advanced should be determined by fatigue, pain, swelling, febrile reaction and analgesic requirements. The sedimentation rate may also be helpful. However, in a number of cases of rheumatoid arthritis, it has been observed that patients, bedridden for a long time and from whom all activity has been withheld because of an elevated sedimentation rate, improved functionally and clinically, without exacerbation, with a carefully graded program of training and activity. In a number of instances, the sedimentation rate began slowly to fall after activity was started.

Presenting some of the most difficult training problems in rehabilitation are the quadraplegic and paraplegic patients. Although the rehabilitation of these patients is a mission requiring the teamwork of the orthopedist, the neurosurgeon, the urologist, the neurologist and in many instances the plastic surgeon, it is a rehabilitation problem in which the general practitioner plays an important role. His services are invaluable in maintaining the morale, nutrition and general health of the patient, and on his shoulders frequently falls the task of correlating the work of the specialists and interpreting it to the patient. In many instances, he must also make the decision as to whether rehabilitation should be attempted. This decision is one that should be approached with hope, courage and understanding, rather than the defeatist attitude that so frequently exists. Such an approach has been achieved in the Veterans Administration publication, "What's My Score."[3] The following paragraphs quoted from this publication are honest and factual but also give insight and hope to the patient:

> When the *spinal cord is completely severed,* it will *not grow* together again, and, up to now, no technique has been developed by medical science that will accomplish this and make it heal and function again. Some spinal-cord injuries are not complete and, in time, there may be some return to function.
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> There are many diseases for which there are no cures, but medical science is finding out new things all the time. Twenty years ago, nothing could be done for diabetes and other similar diseases; now they are easily managed. A great deal of research is being done on nerve and spinal cord injuries, and some day we may get the answer. But at the present time, when the spinal cord is severed, there is no answer except YOU—you and your desire to live an independent life.
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> Many men have done just this. This book contains their experience and the techniques they have developed. You can do the same thing if you get in there and pitch. . . .

Of the approximately 2,600 paraplegic veterans to whom that message was addressed, more than half have been taught to walk with the aid of crutches and braces and have left Veterans Administration hospitals ready for jobs or further vocational training. The case loads in the Veterans Administration's six paraplegia centers, however, have not decreased by a single case, as the rehabilitated patients have been replaced by patients with conditions resulting from peace time accidents.

As with the paraplegic patients, the general practitioner is forced to call on the services of medical specialists when dealing with patients undergoing amputation. However, he must assume the responsibility for preparing his patient physically and psychologically for the amputation and see that the patient has the proper prosthetic device adequately fitted and is trained in its use.

One phase of the management of the amputee to which the general practitioner should give particular attention is the immediate postoperative period, while the stump is being shrunk in preparation for a prosthetic device. During this period of six to eight weeks, the patient should be given graduated conditioning exercises in preparation for both crutch walking and the later use of the artificial limb, and measures should be taken to prevent anatomic deformities.

For example, it is not an uncommon practice in many hospitals following an above knee amputation to elevate the stump on a pillow. However, if such elevation is maintained for as long as two weeks, a flexion deformity will occur which will take from six to eight weeks of arduous painful work before sufficient hyperextension can be regained for satisfactory walking.

In advising his patient on the selection of a prosthetic device, the general practitioner must be aware of the fact that not all limbs are suitable for all amputees. In fact, he must realize that not all amputees can wear artificial limbs profitably. It has been noted on the rehabilitation service at the New York University College of Medicine that an above knee amputee in the older age group cannot, as a rule, profitably be trained to use a prosthesis if he is unable to perform a swing through gait on crutches.

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[3] What's My Score, Publication 10-10, Veterans Administration, Washington, Government Printing Office, 1946.

The physician must point out objectively to the patient those skills which the patient can expect to achieve with proper training and those skills which the patient has little chance of ever regaining. Extreme caution must be taken in the latter, however, as it is unwise to tell a patient what "he cannot do," for this cannot be determined in most cases until the patient has had adequate training. Training is absolutely essential if the amputee is to be successfully rehabilitated.

One of the most pressing medical problems today is that of chronic disease, and in this field the general practitioner bears the brunt of the load. In 1940, the 26.5 per cent of the nation's population over 45 required over half of the nation's medical service. By 1980, it is expected that the number of persons over 45 will constitute nearly half of the population. We are living in the era of an aging population. A thousand years ago the average length of life was 25 years; at the turn of the century it was 49; today it is 66. In 1900, 1 person in 25 was 65 years of age or older; it is estimated that in 1980, the ratio will be 1 in 10. The chances are now 2 out of 3 that a young man starting his working life at the age of 18 will live to the retirement age of 65. A 45 year old man today has 70 chances in 100 of reaching the age of 65, and the chances of a 55 year old man are 87 in 100. The needs of this great group can be met only with a dynamic therapeutic program.

Age plus physical disability will prevent many persons from returning to competitive employment. Vocational placement, however, is not the only valid goal of rehabilitation. The factors of self care and the ability to do productive work while still living in a hospital, home or other adult institution are also valid objectives. They are valid medically and socially, for their effects on the well-being of the person and economically, in that the personnel and operating costs of the institution or the patient's home are thereby reduced. Using the known technics of selective placement, these persons should be allowed to work within the limits of their capacities. Work, properly prescribed, is one of the most valuable therapeutic tools in the treatment of geriatric patients and those suffering from chronic disease. The problems of chronic disease and the aging population can be met only by the creation and utilization of abilities, rather than the building of facilities.

In rehabilitation, as in definitive medical care, the general practitioner is an essential and integral member of the therapeutic team. Today, as new and mounting demands are made on him to restore his patients to maximum economic and social effectiveness, he must turn to the expanding field of rehabilitation and physical medicine for increased technical skills and assistance. However, he can apply many of these simple technics directly in his office, home and hospital practice to help his physically disabled patients "learn to live and work with what they have left."

### ABSTRACT OF DISCUSSION

Dr. Sedgwick Mead, St. Louis: Have you used Dr. Delorme's resistance exercises in the retraining of persons with hemiplegia or central lesions?

Dr. Rusk: I have found them helpful.

Dr. Mead: I have had persons with poor gait and atrophy superimposed on lack of control; after treatment these persons are able to take one step after another instead of dragging one foot behind the other.

Dr. Rusk: I have found building up muscle tone very helpful.

Dr. Weiss: Do you have any information about the rehabilitation of paraplegic patients in civilian life of the older age group. Veterans were a selected group of young men with far better potentialities. Have you any information as to the rehabilitation of the older paraplegic patient?

Dr. Rusk: I have had patients in their sixties, and I find a different motivation in the civilian than in the veteran, because the civilian is not protected by an adequate pension which will allow him to live at least without fear of want. I found in all age levels that in the civilian there is splendid motivation. I had 1 case recently at the new Institute of Rehabilitation of Physical Medicine in New York University. The patient was a 21 year old girl with a lesion of the sixth cervical segment, with no use of her triceps and inability to hold anything in her hands. She well exemplifies the fact that the vocational objective is not the total objective of rehabilitation. She could never be taught to walk, because she had no triceps function. However, I was able to make special gloves by turning the usual glove backward, cutting off the fingers and sewing the thumb across the palm. She could then place a knife, fork, spoon and toothbrush into the thumb of the glove and learned to feed herself and take care of her toilet needs. Another pair of gloves was devised with a peg arrangement in the thumb with which she was able to operate an electric typewriter. With the fitting of a proper wheel chair, she was able to get about the room unaided. These three simple things allowed her to go back to her home and accept a position as office manager in her brother's business, rather than spend the rest of her life as a home-bound invalid. I have found tremendous motivation in all age groups of hemiplegic and paraplegic patients, and the results of training have been gratifying.

# EFFICACY OF THE SUPPOSITORY AND OF JELLY ALONE AS CONTRACEPTIVE AGENTS

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One of the greatest obstacles to the prescription of contraceptives by physicians has been the belief that the diaphragm with a spermicidal jelly or cream is the only reliable method which the patient herself can employ. With this in mind, the physician recalls also the time-consuming features of fitting a diaphragm and instructing the patient in its use and as often as not side-steps the whole issue by omitting any form of contraception from his armamentarium. This contraceptive method was developed to meet some of the disadvantages of the sheath, especially the frequent unwillingness of the man to use it. It had the further advantage of putting the control of contraception in the hands of the woman, which was logical, as she was more available for education and more aware of the necessity; since she is the greater sufferer from an unwanted pregnancy, it was supposed that she would be more willing to learn the method and to use it regularly.

Under the direction of specialists the diaphragm served a useful purpose and suited the needs of a certain group of patients. However, its inherent disadvantages have kept it to a large extent restricted to the practice of the few, for, in general, the physician's interest in teaching a patient a prophylactic measure is much more apt to be sustained when a simple explanation is sufficient than when extensive instruction in technic is

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required. Many physicians find that the fitting of diaphragms, teaching the patient how to insert and remove them and requiring the patients to return for another check on their ability to insert and remove them carry disagreeable implications and are altogether too time consuming to be practicable.

The confidence of a physician in the method is badly undermined, furthermore, when he finds the literature recording disagreement among specialists as to whether the diaphragm should be inserted dome up or dome down; whether or when a douche should be taken, and with what solution, and whether the size prescribed should be ascertained by means of fitting rings or by the diaphragm itself, to enumerate only a few problems. All proponents of the method agree that there are certain women unsuited to the technic: notably those seeking premarital advice, those with extensive relaxation of the vaginal floor and those unable to learn how to insert and remove the diaphragm. The method is totally unsuited to the obstetrician with a large practice, who lacks the time to give the necessary instruction. Obviously, it is wholly unsuited to the large clinic, whether in the city, or in the rural areas, where the number in the postpartum clinic precludes the allocation of twenty minutes or more to each patient for this particular service. It is certainly not adapted to the needs of a patient in any walk of life who seems mentally incapable of understanding the method.

Indeed, it seems to some observers that the fundamental concept of the diaphragm as an occlusive agent is fallacious, as one can hardly expect a fit between the rim of the instrument and the vaginal wall close enough to prevent the passage of sperm to the posterior part of the vagina, and its only occlusion is of the cervix itself, preventing direct insemination. Examination of many patients with extreme anteversion of the uterus has demonstrated that often the cervix is caught by the rim of the diaphragm and is pushed back into the posterior part of the vagina, completely uncovered. In such cases the contraceptive value derived from the method arises solely from the jelly or cream associated with its use. When we investigate the actual use of the method by careful questioning of the patients, we discover that the majority of them regard the diaphragm as the important feature of the method and the jelly or cream simply as a lubricant; when they have no jelly or cream on hand, they use any material convenient at hand for its lubricating qualities. These factors, among others, explain why pregnancies occur in spite of regular but improper use of the method.

An advantage claimed for the diaphragm-jelly technic was that it permitted the physician to control the supplying of patients with the material and, therefore, left it to his discretion as to whether or not it would be prescribed; moreover, it gave the patient the added advantage of a pelvic examination which she might otherwise not have, at which time any existing pathologic process could be brought to her attention. These purposes were quickly defeated, however, as diaphragms and jelly were made available to purchasers through drugstores without the intermediary of the physician in the transaction, either to fit or prescribe the material. This arose partly from the desire of the patient to avoid payment of the physician's fee and partly from the unwillingness of physicians to fit the diaphragms. The jelly sold in these combinations seldom has good spermicidal qualities, and pregnancies occurring in spite of this use have further contributed to the distrust of patients and physicians of the value of the method.

In response to popular demands for a simple contraceptive, reasonably free of objections, various materials have been marketed under the names of jellies, creams and suppositories, and these have advantages of simplicity of use, from the point of view of the method's being readily understood by the patient and requiring the minimum of privacy for their insertion. Manufacturers learned quickly what physicians are often slow to grasp, that any therapeutic measure, requiring the unremitting cooperation of the patient as an important factor in success, must be simple to use and free of objectionable qualities. Thus the patient has forced the physician to consider seriously the merits of these simpler methods for his own as well as the patient's best interest. Similarly, in the practice of a large clinic, if the method which is simple can be demonstrated to be reliable and free of objection, much of the difficulty in supplying patients with a contraceptive is eliminated.

The requirements for a contraceptive are, in certain phases, more stringent than those connected with any other material prescribed. When it is recalled that the patient subject to cardiovascular renal complications of pregnancy has apparently a high rate of fertility and that for the true cardiac and the tuberculous woman a single pregnancy may prove fatal, one becomes aware of the urgent necessity that a contraceptive should be as effective as it is humanly possible to make it. A single live sperm circumventing the barrier to its entrance into the cervix is all that is required to bring about a train of circumstances upsetting to all concerned. Thus the contraceptive, under the various conditions in the vaginal tract, must have a higher efficiency rate than is required of any antiseptic. Secondly, it must be so free of objectionable qualities that the patient does not mind using it, and, to make it completely successful, it should have some qualities from which the patient derives, or imagines she derives, benefit. Many women retain their faith in douches not only because they are simple to take but because the odor of the solution, or its qualities of giving a pleasing after effect in addition to the cleansing, appeals to their aesthetic sense. This, again, has been made use of by manufacturers, who have endeavored to incorporate some of the qualities mentioned into their products, with a resulting popular appeal. It remains, therefore, to examine these products in order to determine what preventive qualities they may possess.

One of the difficulties in evaluating measures requiring patient cooperation lies in ferreting out the truth in regard to irregularity of use. Even in so simple a matter as a patient's taking iron for anemia of pregnancy, obstetricians find a great similarity between private patients and those in the clinics and experience difficulty in keeping more than 80 per cent of women regularly on the medication. One should, therefore, be willing to accept in the population at large about 20 per cent failure of patients to cooperate in the use of a contraceptive.

### BALTIMORE STUDY

With these circumstances in mind we decided independently, several years ago, to study the efficacy of certain simpler methods of contraception which did not entail the use of the diaphragm. Since in Baltimore an investigation had just been completed on the safety and value of phenylmercuric acetate as a contraceptive,[1] suppositories containing 0.05 per cent of this chemical were employed solely in that investigation. All patients were of known fertility, since they had recently been delivered of infants; none were lactating, and all were menstruating regularly and living with their husbands. All women in the study returned for check-up and additional supplies every two to three months. The following instructions were given:

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[1] Eastman, N. J., and Scott, A. B.: Phenylmercuric Acetate as a Contraceptive, Human Fertil. 9: 33-42 (June) 1944.

1. Keep suppositories in a cool place.
2. Remove the tinfoil covering before using.
3. Insert the suppository as far as possible into the vagina (birth canal), before each and every sexual relation.
4. The suppository melts in the vagina in —— minutes,[2] and you must wait at least this long before having sexual relations.
5. Do not wait more than thirty minutes after inserting the suppository.
   If you do wait more than thirty minutes, you must insert another suppository before sexual relations.
6. Lie flat in bed for at least two hours after sexual relations. Do not douche.
7. Wait at least six hours after relationship before douching and then douche with warm soapy water.

In order to make certain that the suppositories would be acceptable to husband and wife and in order to eliminate as much as possible half-hearted and irregular users, a trial period of six months was allowed before the patient was actually included in the investigation. In other words, in addition to the 333 women listed in table 1, more than 150 patients were given suppositories but had to be omitted from the study because (*a*) they did not return after the first or second visit and could not be traced, (*b*) they did not like suppositories and changed to some other method, (*c*) they exhausted their supply of suppositories or (*d*) they found themselves pregnant during the first month or two after using the suppositories. There were 14 known pregnancies in this group and possibly others of which we do not know. Because of the time relationships several of these 14 pregnancies may have existed at the time suppositories were first used. These failures may be added to those shown in table 1 and the results recalculated if desired, but it is quite impossible to state with even approximate accuracy just how many weeks or months, or how regularly, this group used the medication.

TABLE 1.—*Contraceptive Efficacy of Suppositories in 333 Patients (Nov. 1, 1943-March 1, 1948) in Baltimore Study* *

| Number of Patients | Months Suppositories Used | Patient Months | Method Failures | Patient Failures |
|---|---|---|---|---|
| 41 | 6 | 246 | 6 | 3 |
| 37 | 7 | 259 | 3 | 5 |
| 21 | 8 | 168 | 2 | 4 |
| 32 | 9 | 288 | 5 | 1 |
| 17 | 10 | 170 | 2 | 2 |
| 18 | 11 | 198 | 3 | 0 |
| 15 | 12 | 180 | 4 | 1 |
| 19 | 13 | 247 | 3 | 0 |
| 17 | 14 | 238 | 1 | 1 |
| 24 | 15 | 360 | 3 | 0 |
| 16 | 16 | 256 | 1 | 0 |
| 15 | 17 | 255 | 2 | 0 |
| 10 | 18 | 180 | 0 | 0 |
| 5 | 19 | 95 | 1 | 0 |
| 4 | 20 | 80 | 0 | 1 |
| 11 | 21 | 231 | 2 | 0 |
| 3 | 22 | 66 | 0 | 0 |
| 8 | 23 | 184 | 0 | 0 |
| 9 | 24 | 216 | 1 | 0 |
| 3 | 25 | 75 | 0 | 0 |
| 1 | 26 | 26 | 0 | 0 |
| 4 | 27 | 108 | 0 | 0 |
| 3 | 28 | 84 | 0 | 0 |
| 333 | | 4,210 | 39 | 18 |

* When calculated according to 100 woman-years of exposure to conception, by means of the usual formula ($R = 1200 \times \frac{\text{Conceptions}}{\text{Months of Exposure}}$), the pregnancy rates were as follows:

$$R \text{ (method failure)} = 1200 \times \frac{39}{4{,}210} = 11.1$$

$$R \text{ (total failures)} = 1200 \times \frac{57}{4{,}210} = 16.2$$

TABLE 2.—*Efficacy of Diaphragm and Jelly as Reported in the Literature*

| Series and Method Prescribed * | Months of Exposure | Number of Conceptions | Chance of Conception † |
|---|---|---|---|
| 1. New York ‡ | 18,012 | 185 | 12 |
| 2. Philadelphia § | 13,305 | 163 | 15 |
| 3. Nashville ‖ | 5,542 | 81 | 18 |
| 4. Cincinnati ¶ | 51,308 | 787 | 18 |
| 5. San Juan, Puerto Rico # | 2,293 | 64 | 33 |

* From Beebe, G. W.: Contraception and Fertility in the Southern Appalachians, Williams & Wilkins Company, Baltimore, 1942.

† *Conceptions per 100 woman-years of exposure to the risk of conception,* i. e.,

$$R = 1200 \times \frac{\text{Conceptions}}{\text{Months of Exposure}}$$

‡ Stix, R. K., and Notestein, F. W.: Controlled Fertility: An Evaluation of Clinic Service, Baltimore, Williams & Wilkins Company, 1940.

§ Beebe, G. W.: Contraception in a Private Medical Practice, unpublisher Master's Essay, Columbia University Library, New York, 1938. Dewees, L., and Beebe, G. W.: Contraception in Private Practice: A Twelve-Year Experience, J. A. M. A. **110**: 1169-1172 (April 9) 1938.

‖ Beebe, G. W., and Overton, J.: The Contraceptive Service of the Department of Health, City of Nashville, J. A. M. A. **118**: 1045-1049 (March 28) 1942.

¶ Stix, R. K.: Birth Control in a Midwestern City: II. The Effectiveness of Contraception After Clinic Attendance, Milbank Mem. Fund Quart. **17**: 152-171 (April) 1939.

# Beebe, G. W., and Belaval, J. S.: Fertility and Contraception in Puerto Rico, Puerto Rico J. Pub. Health & Trop. Med., to be published.

The patients who returned and stated that they did not like the suppositories gave the following reasons: (1) Neither husband nor wife had confidence in suppositories, since they had always heard that the diaphragm was the safest method; this was the commonest explanation (35 cases); (2) irritation on the part of the husband (5 cases); (3) irritation on the part of the wife (3 cases), and (4) too "messy" (7 cases). In looking back over the histories of the 333 women who used suppositories six months or more, it was found that 6, or 2 per cent, had complained of some irritation on the part of either the husband or the wife when the suppositories were first employed, but they observed that this had not recurred after the first or second use.

The results of the Baltimore study are shown in table 1. "Patient failures" are those in which the woman acknowledged that she had failed to use the suppository on one or more occasions. "Method failures" are those in which inquiry failed to obtain any acknowledgment of coitus without preceding insertion of a suppository. Because of personnel shortage during and after the war, it was not possible to visit these patients in their homes as much as would have been desirable, and this apparent lack of interest and encouragement on our part may be the cause for the higher rate of failure in Baltimore than in Columbia. This important aspect of the problem will be touched on again in connection with the Columbia study. However, although the gross figure of 16.2 pregnancies per hundred woman-years of exposure[3] may appear high when compared with the South

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[2] Melting time is determined in each patient and written here. It varies between 4 and 10 minutes in different patients.

[3] The term "pregnancies per 100 woman-years of exposure" has become the standard method of expressing conception rates with or without birth control procedure. In calculating the period over which a given woman has been exposed to conception, intervals during which she is pregnant are omitted, because another conception is obviously impossible at that time and hence she *cannot* be considered as exposed to it. For example: If a woman has had six full term pregnancies in ten years of married life, the period over which she was exposed to pregnancy would be one hundred and twenty months (period she was married) minus sixty months (period she was pregnant) or sixty months, or five years. If 20 women with an identical experience were observed, there would be 100 woman-years of exposure during which time one hundred and twenty conceptions occurred, that is, the pregnancy rate would be one hundred and twenty for the hypothetic group.

Carolina record, it compares favorably with the reported results with the diaphragm and jelly, as tabulated by Beebe[4] and reproduced in table 2. On the basis that the preclinic pregnancy rate of our patients was similar to that commonly reported (table 3), the reduction in fertility in the Johns Hopkins study would be of the order of 85 to 90 per cent.

### SOUTH CAROLINA STUDY

The prescription of contraceptives on a rather large scale has been under the supervision of one of us (R. E. S.) in the clinics for postnatal patients and those undergoing antisyphilitic treatment under the South Carolina State Board of Health. The clientele of these clinics is largely rural Negro, averaging in education about fifth grade in school. Obviously, fitting of diaphragms was beyond the scope of the limited personnel with the large population they had to serve, and thus was reproduced on a large scale the problems of city clinics, with a possible difference of mental level.

During the years 1941-1947 various methods were used, with the results shown in table 3. Here it may be seen that the South Carolina study represents a composite of twelve separate investigations, in which various contraceptive agents were employed. The number of patients followed (line B) ranged from 41 in one investigation to 197 in another, with a grand total of 1,573 women followed. The women-months of exposure while the contraceptives were being used (line F) varied between 571 and 3,491, with a grand total of 21,088. Seventy-nine conceptions occurred (summation of line G). By reading line H across it will be seen that the conceptions per hundred years of exposure were surprisingly low, the over-all average for regular users of the methods being 4.5.

The figures, it should be noted, are from those claiming to be regular users only, as this group seems the logical one for evaluation of the pregnancy preventive factors concerned. A study of reports from irregular users might throw light on various phases, such as acceptability of the material, the extent to which a patient was interested in contraception and the ability of a group to use material regularly. None of these are pertinent to our inquiry, which was primarily directed at the percentage of reduction of fertility which could be brought about by regular use of the material distributed.

Some observers have tended to discount the South Carolina figures because of the fact that we do not include irregular users. This, it seems to us, is no more fair than evaluation of the effect of iron in simple hypochromic anemia on the basis of the mass distribution of iron and then recording the change of hemoglobin regardless of whether the patient used it occasionally, rarely or not at all. Because of the type of patient to whom material was distributed, there was necessarily in the group a certain number not convinced of the need for pregnancy prevention, because of superstition or other reasons, and some mentally incapable of carrying out the simplest directions except under supervision. Many of them were careless with the material and allowed it to be destroyed or, where mechanical appliances, such as applicators, were essential, lost them, broke them or allowed them to be filled up with dried material so that they were unfit for use.

It is true that we do not know to what extent regular and unremitting use was the practice of those who did not become pregnant; nor do we know how to arrive at the answer to this question. It is possible that many of the women were irregular in their practice, and their being relatively or completely infertile may have served to give a higher figure than would be derived with all the facts available. However, it is believed that in a study of this sort, covering so many patients over so long a time, the factor of irregular use not followed by pregnancy is a fairly constant one, running through the series.

Effectiveness measured by reduction in fertility is rather high in this series. Certain factors entered into the success achieved which probably were not present in other series. In the first place, we learned by experience not to count a patient as an active user until she had at least two regular periods after being supplied.

TABLE 3.—*Contraceptive Efficacy of Various Jellies and Creams, Used Without Diaphragm, and of Suppositories, in South Carolina Study*

| | (1) Jelly "A"* | (2) Cream "X" | (3) Suppository "B" | (4) Jelly "C" | (5) Cream "C" | (6) Suppository "D" | (7) Jelly "D" | (8) Jelly "D" | (9) Suppository "D" | (10) Sponge and Powder | (11) Jelly "E" | (12) Suppository "E" |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A. Number of months | 16 | 37 | 18 | 12 | 26 | 24 | 24 | 12 | 12 | 25 | 16 | 33 |
| B. Number of patients | 49 | 180 | 190 | 182 | 180 | 170 | 160 | 70 | 93 | 41 | 61 | 197 |
| C. Number of preclinic pregnancies | 243 | 1,158 | 1,191 | 811 | 980 | 587 | 901 | 461 | 537 | 215 | 309 | 898 |
| D. Preclinic exposure to pregnancy (woman-months)† | 2,695 | 13,461 | 15,414 | 12,446 | 10,285 | 9,581 | 11,549 | 6,520 | 5,714 | 2,255 | 3,294 | 11,346 |
| E. Preclinic pregnancy rate ‡ | 108 | 103 | 92.7 | 78.2 | 114 | 73.5 | 93.6 | 84.8 | 113 | 114 | 113 | 95.0 |
| F. Corrected clinic experience (woman-months)† | 571 | 3,491 | 2,116 | 1,374 | 2,948 | 3,302 | 2,709 | 285 | 537 | 664 | 641 | 2,450 |
| G. Unplanned pregnancies (method failures) | 1 | 12 | 14 | 2 | 21 | 1 | 12 | 4 | 2 | 2 | 3 | 5 |
| H. Clinic pregnancy rate § | 2.1 | 4.1 | 7.9 | 1.7 | 8.5 | 0.4 | 5.3 | 17 | 0.5 | 3.6 | 5.6 | 2.4 |
| I. Effectiveness: reduction in fertility through clinic ‖ | 98.1 | 96.0 | 91.5 | 97.8 | 92.6 | 99.5 | 94.3 | 80.0 | 99.6 | 96.8 | 95.0 | 97.5 |

* The letters ("A," "B" etc.) are employed to preserve anonymity of manufacturers. The same make of jelly or suppository was sometimes used in different studies, as in columns 7 and 8 and in 6 and 9, but since the circumstances varied the results are kept separate.

† From dates of marriage or from first pregnancies to date of arrivals at clinic, less ten months for each full term pregnancy and appropriate deductions for premature deliveries and miscarriages.

‡ Pregnancies per hundred woman-years as calculated by formula cited in table 1 ($1200 \times \frac{C}{D}$).

§ Pregnancies per hundred woman-years as calculated by formula cited in table 1 ($1200 \times \frac{G}{F}$).

‖ $\frac{E-H}{E} \times 100$.

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[4] Beebe, G. W.: Contraception and Fertility in the Southern Appalachians, Baltimore, Williams & Wilkins Company, 1942.

This eliminated patients who were pregnant at the time they were supplied, which, in an earlier series, was found to be around 8 per cent. We felt it unfair to the material to blame it for its lack of spermicidal qualities until we found that the patient was not pregnant when she began to use it. This rule also had the value of eliminating from our list women who were only mildly interested who often caused us to wonder, when they became pregnant shortly after they had been supplied, whether they had ever used the material. The one important reason for the success achieved in this series was that the patient was seen either at the clinic or at home not less than every six weeks and was checked as to supplies on hand, so that she would not be out of material and also to determine whether or not she was using it. These visits served to encourage the patient in the use of the material or to report its nonuse and played the same useful role that the frequent visits to the office during her prenatal care afford in encouraging the patient to carry out the obstetrician's directions. We rather deliberately put the study shown in column 8 in a clinic where it was impossible to have these frequent visits. The material was given out to the patients, and they were instructed to return for more when they needed supplies; no special effort was made to encourage them to use it, since, in that county, health department personnel was rather limited and none of the nurses could give time to it. When the results in this county are contrasted with those in column 7 with the same material, we see the recurring figure of approximately 20 per cent difference in effectiveness, which we attributed to lack of use or irregular use where the indifference of the patient was not overcome by the encouragement of the nurse visitor.

An interesting by-product of this study answers rather satisfactorily the question as to whether these materials tend to produce sterility. We found that there were certain regular intervals when we could expect pregnancy following irregular use. These occurred in the third, twelfth and eighteenth months. It is during the first three months that the irregular user first comes to light. Again, at the twelfth and eighteenth months many of the patients have felt secure that they would not become pregnant. They were unable because of their mentality to connect the lack of conception to regular use in a direct causal manner and often became irregular users. We found in these patients conception apparently took place within two months after irregular use became the rule; in a number of cases in which contraception was prescribed for the spacing of conception and another pregnancy was desired, there were no reported instances where there was failure to conceive. While this feature was not followed out in any extensive manner so that percentage results could be published, we certainly were impressed with the observation that sterility was not increased in this series by the use of the material.

It would be highly improper to draw any conclusions as to the relative effectiveness of the various methods listed in table 3 based on percentages, since careful analysis of the figures shows that these differences are more apparent than real. Often a contraceptive agent showed better results when subjected to a twelve month study than to one of twenty-six months, and it is possible that during the twelve months' study, some of these patients were relatively infertile and might not have become pregnant had they not used any contraceptive. However, it must be recalled again that effectiveness depends primarily on acceptability and, in general, the simpler the method the more acceptable and, therefore, the more effective. We believe, therefore, that a suppository containing the same material found in a cream or a jelly will prove more effective on a large scale because its use is simpler.

## SUMMARY AND CONCLUSIONS

Two separate studies are reported evaluating the efficacy of certain simple methods of contraception which do not entail the use of the diaphragm—one carried out in Baltimore and the other in Columbia, S. C., and vicinity.

In Baltimore 333 women, who used a suppository containing phenylmercuric acetate as the only contraceptive agent, were followed for intervals which ranged between six and twenty-eight months. The total period of exposure to pregnancy of these women while under observation was 4,210 woman-months. Fifty-seven conceptions took place, or 16.2 per hundred woman-years of exposure. In 18 of these 57 cases the woman acknowledged failure to use the suppositories on one or more occasions. Subtracting these, there were 39 conceptions which occurred despite the regular use of the suppositories, or 11.1 per hundred woman-years of exposure.

In the South Carolina study various types of simple contraceptives were used, including jelly alone, cream alone, suppositories, and sponge and foam powder. Fifteen hundred and seventy-three women were followed for intervals which ranged between twelve and thirty-seven months. The total period of exposure to pregnancy of those women while under observation was 21,088 patient-months. Seventy-nine pregnancies occurred despite the regular use of the contraceptive agent, giving an over-all average figure for the non-diaphragm methods of 4.5 conceptions per hundred woman-years of exposure.

As may be seen in table 2 the efficacy of the diaphragm and jelly in New York has been reported as low as 12 conceptions per hundred woman-years of exposure and in other cities of the United States from 15 to 18. On the other hand, in San Juan, Puerto Rico, the identical method has yielded a figure of 33. This shows clearly that the end results of any birth control program will depend more on personal factors (such as earnest desire to prevent conception and intelligence) than on the inherent efficacy of the procedure employed. The divergency of the figures reported in the present study doubtless reflects the same circumstance. Moreover, the sources of error in calculating results are many, and, all in all, statistics on the intrinsic value of any given method must be regarded as approximations only. Although the present study is vulnerable to all these criticisms, it at least raises the question as to whether the superior efficacy of the diaphragm over other procedures has not been greatly exaggerated. It may be that certain women, highly skilled in the insertion of the diaphragm, will receive better protection from that technic, but surely mass studies on the diaphragm have not shown greater efficacy than is reported in this paper by simpler procedures. Hence, the conclusion would seem inescapable that these latter methods—especially the suppository, the simplest of them all—deserve more widespread trial than they have heretofore received.

# ORDEALS OF PUBLIC HEALTH

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## HISTORICAL BACKGROUND

To decide who was guilty or who was right between two litigants, Birmanian tradition prescribed that two candles should be simultaneously lighted and given to the litigants. The first to go out was the one in the hands of the guilty or wrong party. A divinity was also supposed to protect the innocent person against the damage of a testing substance that he was made to swallow, or enable him to walk on red hot iron, or extract a ring from the bottom of a caldron full of boiling water or go through other such queer and extraordinary trials that people conceived in different ages and regions. They were the mediums of God's judgment: the ordeals, or *Dei iudicium.* Sometimes individual prowess was replaced by a duel, in which one of the two fighters was a gentleman or a champion who defended his lady or his master. Might is right: the strongest must win and deserves to win. Perhaps as a rebuttal, Voltaire said, many years later, that God was always on the side of the larger cannons. According to their respective idiosyncrasies the ordeals developed, in France, toward torture and in England toward the jury. In the former, truth was routed out by pain and, in the latter, guilt was ascertained by other citizens who might have cherished like passions or gone through conditions similar to those of the accused. These thoughts arise from the contemplation of the pubic health panorama. Doing so, one feels subjected to a test that would be unbearable if one were not sustained by an unshakable faith in the value of a sound public health policy.

## ROLE OF THE SANITARIAN

The sanitarian, on preparing his plans, proceeds much as the engineer: he looks for the data and analyzes, treats and presents them for his own use and for that of others, drawing from them the pertinent conclusions. He acquires this system, thanks to epidemiology which is essentially a methodology. As a physician he was not inclined to act so, for medical practice is, even today, an art, in which intuition is of more avail than method. In advanced countries, predictions are difficult, even granting that future events are mainly the results of the development and extension of those past and present. It must be so, since in the route of progress they open a path and mark a trail. On the contrary, we, the smaller and younger countries, navigate on a charted sea.

This land is propitious for the development of specialists. It has been said that specialization is a centrifugal force which is tearing culture asunder. But this does not matter now. What does matter is that it is enough for a medical officer in the United States to be well acquainted with the prevailing conditions of the population under his care to perform his tasks correctly. We, on the other hand, must divide duties among a handful of men and, consequently, have to know the most diverse facts and developments from the beginning to what was published in today's paper.

## ECOLOGIC DATA

It is true that North Americans are the product of many races which have blended in the crucible of this enormous country, and one can still perceive the existence of different groups. However, the phenomenon appears rather as the implantation of many grafts in the single Anglo-Saxon stem. A group of mature and peaceful people crossed the Atlantic and settled on this side. They brought with them many of their traditions and ways of living. That is why the War of Independence is called a revolution.

To Chile, on the contrary, came a conqueror, armed to the teeth and motivated by domination and plunder. Pedro de Valdivia brought with him a priest, because he was concerned about the future of his soul, but not a physician, because he came to kill and not to heal. The wounded soldiers were under the care of his lady friend, Inés de Suárez, who was the only woman of the expedition and by whom he never had children. With minor variations, the same story is repeated in Colombia, Perú, Mexico and in other regions. The first solid buildings of the new colonies were the fort and the church. The principal square of our settlements was called Plaza de Armas (Arms' Square). Surrounded by the church cathedral, the houses of the governor and of other prominent persons, it was devoted to soldiers' exercises and parades.

To counteract the vanity of those who say they are descendants of the Pilgrim Fathers of the Mayflower, an American humorist used to boast that his ancestors had been present among those who came to welcome them. The same must have been true of ours. In any case, in Latin America appeared new and different nationalities, which were the product of the mixing of two races which credibly had never been crossed before.

From the crossing of the Spaniards with the natives a new genetic line emerged, the most outstanding characteristic of which is its ability to adjust to new conditions of physical and social surroundings better than any of the parental strains. Together with the ecologic improvement, there is an increased virility from the reproductive standpoint. Large families—of 16, 20 or over—were common in the colonial period, but the death rate, already high, was raised by the new epidemic diseases introduced by the invader. Smallpox helped Cortés to conquer Mexico, and typhus was on the side of Pedro de Valdivia in Chile, to mention just two examples. Consequently, the population did not increase noticeably, but a new and solid stratum for the incipient nationality was formed. This is still intact in the rural areas and small towns, In larger cities new European blood has been added to dilute the native blood further. It has always been difficult for me (H. R.) to fill in the racial item in forms. I do not like to consider myself white, and I could hardly say that I am dark.

## GEOGRAPHIC ASPECTS

When I first arrived in the United States one of the most annoying experiences was that of being referred to professors of and courses on tropical medicine. In spite of the latitude of the northern part[1] of our country, we have no tropics, thanks to the cold Humboldt current, the one that prevents bathers from remaining too long in the water at our beaches.

The Humboldt current equalizes the temperature, so that there is only a small difference between the mean temperatures of the extreme north and of the extreme

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Read in the General Scientific Meetings at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 21, 1948.

Professor of Hygiene and Preventive Medicine, School of Medicine (Dr. Romero), and Research Assistant, School of Public Health (Dr. Cabello), University of Chile, Santiago, Chile.

Because of lack of space this article has been abbreviated in The Journal. The complete paper will be found in the authors' reprints, which the authors will be pleased to send on request.

[1] The tropic of Capricorn passes through Antofagasta, and one seventh of the territory is in the tropical zone.

south, and the Cordillera wards off the continental influence of winds from the Argentine pampa. Consequently it never rains in the north of Chile, and toward the center it rains only during winter. At the peak of agricultural activity, in the summer, the land has to be irrigated, which entails great effort and is not always feasible. In certain regions our climate, as benign as in New Zealand and the islands of the South Pacific, is as pleasant to live in as it is adverse for agriculture.

### POPULATION FACTORS

As we have no tropical crops and have been proverbially poor since colonial times, the Spaniards did not bring Negroes. Chile did not have the slave market that left its traces in other parts of Latin America. When a Negro is seen in the streets people usually turn around to look at him and surmise that he is a boxer or a jazz band player. Nor do we see many Orientals, although there are plenty on the southern coast of Perú. Probably because of this, some of us are entirely lacking in racial prejudices. They are so foreign to our preoccupations that no item for race is included in the census forms in Colombia, Venezuela and Chile.

TABLE 1.—*Population Growth of Chile and the United States; Natural Increase and Immigration*

| Chile | | | | | United States of America | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Annual Increase per 1,000 Population | | | | | Annual Increase per 1,000 Population | | |
| Year | Population (Thousands) | Total | Natural Increase | Immigration | Year | Population (Thousands) | Total | Natural Increase | Immigration* |
| .... | ..... | .... | .... | .... | 1790 | 3,929 | .... | .... | .... |
| ... | ..... | .... | .... | .... | 1800 | 5,308 | 35.1 | .... | .... |
| .... | ..... | .... | .... | .... | 1810 | 7,240 | 36.4 | .... | .... |
| .... | ..... | .... | .... | .... | 1820 | 9,638 | 33.1 | .... | .... |
| ... | ..... | .... | .... | .... | 1830 | 12,866 | 33.5 | .... | .... |
| 1835 | 1,010 | .... | .... | .... | 1840 | 17,069 | 32.7 | .... | .... |
| 1843 | 1.084 | 9.0 | .... | .... | 1850 | 23,260 | 36.3 | .... | .... |
| 1854 | 1,439 | 12.1 | .... | .... | 1860 | 31,502 | 35.4 | 24.2 | 11.2 |
| 1865 | 1,819 | 11.5 | .... | .... | 1870 | 39,001 | 26.7 | 19.4 | 7.3 |
| 1875 | 2,219 | 22.0 | .... | .... | 1880 | 50,262 | 26.0 | 19.0 | 7.0 |
| 1885 | 2,492 | 12.3 | .... | .... | 1890 | 63,056 | 25.5 | 15.1 | 10.4 |
| 1895 | 2,804 | 12.5 | .... | .... | 1900 | 76,129 | 20.7 | 14.9 | 5.8 |
| 1907 | 3,229 | 15.1 | .... | .... | 1910 | 92,267 | 21.2 | 9.6 | 11.6 |
| 1920 | 3,824 | 18.4 | .... | .... | 1920 | 105,711 | 15.5 | 9.3 | 6.2 |
| 1930 | 4,467 | 16.8 | 15.0 | 1.8 | 1930 | 122,775 | 15.6 | 9.3 | 6.3 |
| 1940 | 5,167 | 15.7 | 14.3 | 1.4 | 1940 | 131,410 | 7.0 | 6.3 | 0.7 |

* From Hill, J. A.: "Composition of the American Population by Race and Country of Origin, Ann. Am. Acad. Polit. & Soc. Sc. **188**: 177-184 (Nov.) 1936.

Our Indians were less civilized than their neighbors and of extraordinary courage. Most of them preferred being killed to surrendering, and we probably have less native blood than other nations, only that of the basic layer we already mentioned. This is true of the southern triangle of the continent: Uruguay, Argentine and Chile. In Perú the indigenous population constitutes approximately 50 per cent, and in Mexico a handful of Europeans maintain a precarious balance with the original inhabitants. The conflict looks sharper, considering that the Indians were actually worthy and cultured. No society, to our knowledge, has attained a clearer or more intellectual concept of the state than the Inca; it is hard to conceive a more daring engineering with simpler elements than that practiced by the Mexicans or Bolivians; and whoever values the pleasure of a beautiful combination of colors may well go to Guatemala. It is comprehensible for those countries to talk of Indoamerica, an idea hard to grasp for Uruguayans, Argentineans and Chileans.

When one goes back home from the States there is always an American who asks to be remembered to a Restrepo in Bogotá or to a Souza in Río de Janeiro. It is explainable, because one thinks of Latin America as the United States of the South, which it should be but is not. Our evolution has been conditioned by geography, which has raised tremendous difficulties for communications and has obliged us to remain apart and become differentiated from one another. Previous to the advent of the airplane, Caracas and Asunción were absolutely remote for us. In colonial times Spain compelled us to trade exclusively with her, forbidding intercolonial commerce. The bilateral treaties of the United States have not contributed to this end either.

Chile has grown gradually and should have, by 1950, some 6,000,000 inhabitants.[2] The population increase has been slow, because the increase has been due mainly to the vegetative growth or natural increase, that is, the balance between births and deaths. We have not received immigration waves of hundreds of thousands as in this country and, to a similar extent, in Argentine. Our largest inflow took place toward the middle of the nineteenth century, consisting of a handful of intellectuals who were fleeing from Europe after the failure of the liberal uprisings of 1830, 1840 and 1848. It determined the development of the southern part of Chile, which has been called, with obvious exaggeration, Naziland. A comparison of census results (table 1) of the United States and Chile will shed light on the rate of growth in general, as well as that corresponding to natural increase in both countries.

This number of censuses, an exception in America, may be surprising to some. By way of a historic curiosity, we may mention that Cuba and Puerto Rico each had one, in 1764 and 1765, respectively, but up to now the system has not taken root in our countries. As far as South America is concerned, Brazil, Venezuela, Colombia, Ecuador, Peru, Bolivia and Paraguay had, in 1940, data on only part of the territory and estimations on the rest. Only Uruguay, Argentine and Chile are in a position to carry out nominal and direct census. For other reasons, the two former have not taken one since 1908 and 1914, respectively. We understand that Argentine has completed one recently and 1950 has been set for the census of the Americas, the importance of which cannot be overestimated.

Since Pearl's time[3] we know that population growth, be it of men or banana flies, follows a certain pattern, known as the logistic curve.[4] It sounds absurd and incredible until the data are projected on a curve. The similarity in the history of population growths of different countries is really astounding. At the start, birth and death rates—from infant mortality as well as from all causes—are always high. Because of a surplus of births over deaths, the population increases gradually at first and gains speed as the difference becomes more pronounced. Later it diminishes to the extent of reaching a stabilization phase and even a decline.[5] Its shape is suggestive of a plane that takes off. First it runs along the field and then gains altitude and rises until it levels off.

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[2] Chile had 5,820,695 inhabitants Jan. 1, 1948.

[3] Pearl, R., and Reed, L. J.: On the Rate of Growth of the Population of the United States Since 1790 and Its Mathematical Representation, Proc. Nat. Acad. Sc. **6**: 275-288 (June) 1920.

[4] The mathematical formula was first established by the Belgian mathematician Verlhust. The curve describes the phenomenon so well that some authors have spoken of a law of population growth (Pearl and Reed), which others question or do not accept (Wilson, E. B., and Puffer, R. R.: Least Squares and Laws of Population Growth, Proc. Am. Acad. Arts & Sc. **68**: 285-382 [Aug.] 1933). The logistic starts from a population that, at the beginning, grows little in absolute numbers (the lower asymptote), whose growth first increases rapidly and then recedes progressively, until around the inflection point the growth is stabilized. When the population has come to a standstill the maximum limit has been reached, that is to say, the greatest number that the region can maintain with the resources at its disposal and within predictable progress. Naturally, this limit is not absolute and can be removed or modified by the influence of important changes. This is what happened, for instance, in Puerto Rico, beginning with North American domination (Janer, J. L.: Population Growth in Puerto Rico and Its Relation to Time Changes and Vital Statistics, Human Biol. **17**: 267-313 [Dec.] 1945), and in Germany, with the industrialization that followed victory after the Franco-Prussian war (Pearl, R.: The Curve of Population Growth, Proc. Am. Philos. Soc. **63**: 15-17, 1924).

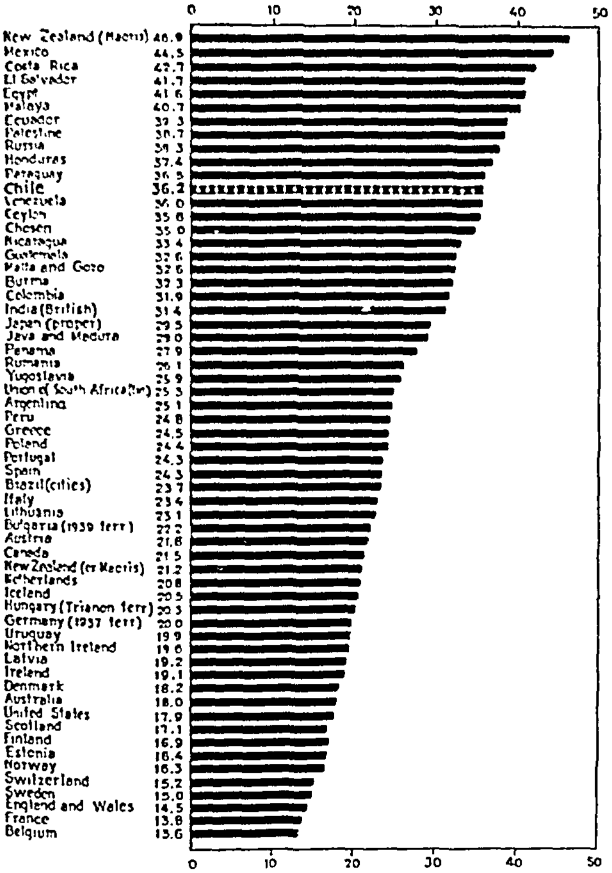

Fig. 2.—Crude birth rates (per 1,000 population) in sixty countries for 1940. (The data in this and other charts [figs. 3 and 4] were obtained from the Summary of International Vital Statistics for *1937-1944*, United State Public Health Service national office of vital statistics.)

A comparative graph of the growth tendency of the populations of France, United States and Chile would demonstrate that France is approaching stabilization and we are left far behind. But even if our present position is equivalent to that of the United States in 1875, it will not necessarily take us seventy years to reach her present situation, since nowadays everything moves at a greater speed and we know today much that the Americans then ignored. The same graph would reveal that we needed one hundred and fifty years to cover the logistic arc that the United States completed in 70. The realization that we are following the path of other nations, induces us to reassert that we are sailing on a charted sea.

In accordance with this conception, Chile is in the second phase of her demographic history. She has one of the highest birth rates (35 per thousand inhabitants (fig. 2) and her infant mortality (143 per every thousand live births) (fig. 3) and general mortality (17 per thousand) (fig. 4) are still very high. These rates have followed parallel tendencies in all countries whose history is recorded, with the exception of New Zealand. They naturally produce a young population with a small life expectancy. Actually, ours was, in 1940, 41.8 years,[6] a small figure compared with that of the United States, but similar to that of other Latin American countries.[7]

With the age distribution that occurs in Chile, infectious diseases, and particularly tuberculosis, should prevail and chronic and degenerative diseases should be less frequent. Infant mortality, together with tuberculosis mortality, constitute approximately 50 per cent of all deaths, a feature which should set the North in our sanitary compass. On the other hand, cancer is not such a problem, although chances of dying from it are the same in every age in both countries. Youth also shapes people's behavior and this fact probably explains why our political organizations are neither very stable nor very serene. Fortunately, Chile has a solid administrative setup, in such a way that rulers and politicians as individuals do not usually modify the main direction of the country. That is why we are certainly the best behaved country in Latin America.

It is said that when enterprises are in the hands of young persons many mistakes are made and when managed by older persons nothing is achieved. The former may still be our condition, and probably the United States has not yet reached the latter. In any event, a large proportion of persons who are intellectually and economically mature makes it possible

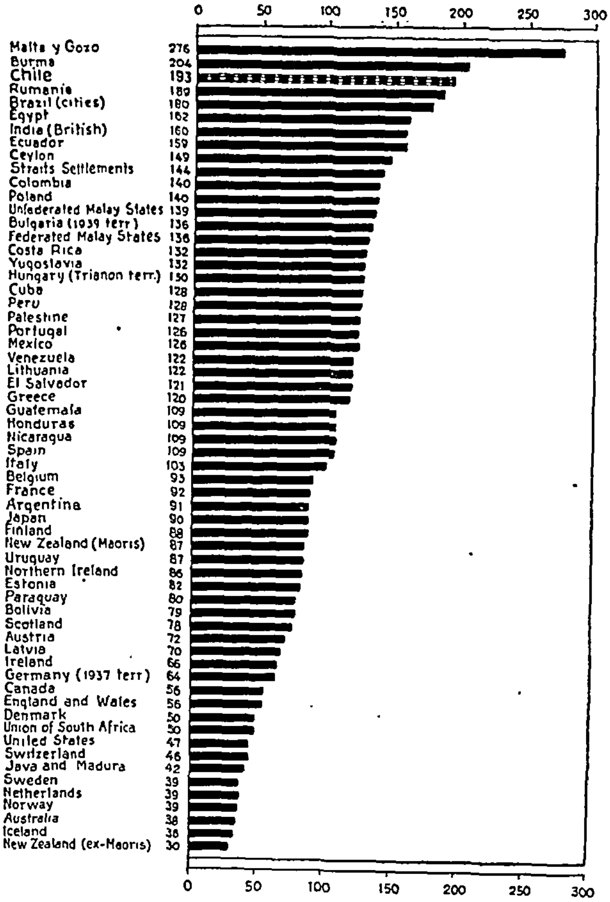

Fig. 3.—Infant mortality rates (based on the number of deaths reported of infants under 1 year of age per 1,000 live births) in sixty countries for 1940.

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[5] Dublin, L. I., and Lotka, A. J.: Length of Life, New York, Ronald Press Company, 1936, pp. 242-277.

[6] Cabello, O.; Vildósola, J., and Latorre, M.: Tablas de vida para Chile: 1920, 1930, 1940, Rev. chilena de hig. y med. prev. **8**: 103-136 (Sept.) 1946; **9**: 113-157 (June) 1947.

[7] Dunn, H. L.; Eldridge, H. T., and Powell, N. P.: Demographic Status of South America, Ann. Am. Acad. Pol. & Soc. Sc. **237**: 22-33 (Jan.) 1945.

to have better trained workers and higher salaries, continuity in commercial and industrial concerns and, consequently, a higher standard of living.

As we are few and we die young, it would be advisable to prolong our productive period. In the United States compulsory retirement is necessary, since older persons who are still strong have to step aside, in order to leave their places vacant for younger folk. For us, conditions are the opposite. Notwithstanding, our social laws give great facilities for retirement and our national budget is unduly burdened with pensions for persons who should be working for the community.

It is a common fallacy to believe that national wealth depends on a growing population and that it is therefore necessary to be concerned with the magnitude of birth rates. According to Raymond Pearl, Dunn says that our planet is going through an epidemic of population growth. In fact, toward the middle of the sixteenth century it held some 445 million persons, and this figure has now reached two billions. This means that in the last three hundred years, one-thousandth part of the known existence of man, the world population has been increased about five fold. It continues to grow at a rate of 1 per cent annually, i. e., about 20 millions. The human species is passing through what zoologists term a breeding storm, which may be attributed to the progress of science that has conquered uninhabited regions, perfected crops, developed new sources of energy and performed other extraordinary feats.

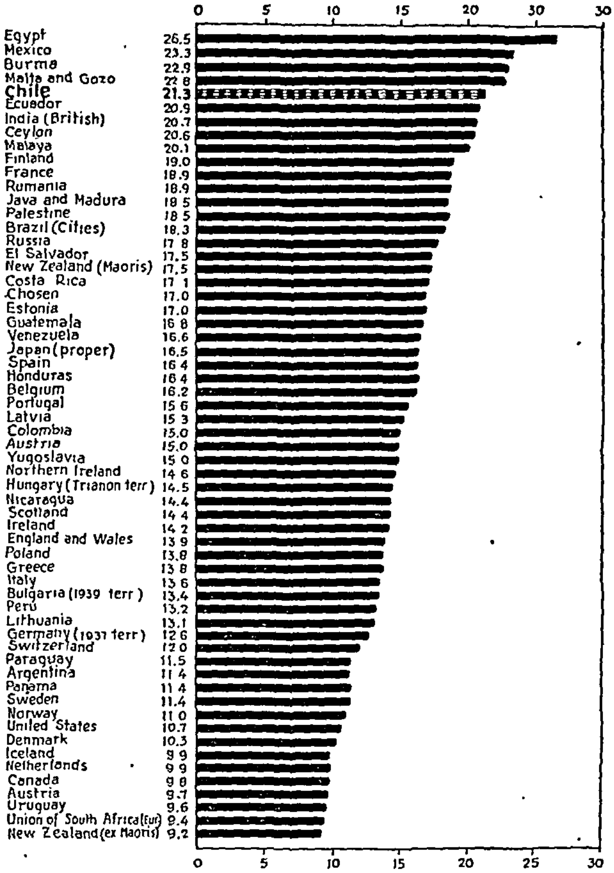

Fig. 4.—Crude death rates (based on the number of deaths reported per 1,000 population) in sixty countries' for 1940. (Unless otherwise specified, war losses are included.)

Comparing the active population of Chile with that of the United States, we see that here a larger proportion is employed in manufacturing and 18 per cent in agriculture, against 34 per cent in Chile. Chile should then be classified as an agricultural country although, as we have already stated, topographic and climatic conditions are rather unfavorable. The contradiction is explainable, because the mining companies are in the hands of foreigners who take away the raw material, returning only the costs of mining and not those of manufacturing and elaboration.

From a public health point of view, the nations of Latin America could be classified in three groups: (1) Those who have a relatively homogeneous population and many persons with a high standard of living, plus an abundance of resources, and no hinterland. In those countries tropical diseases do not exist or are of little consequence. Whoever goes to Montevideo, in the purple land of Hudson, will find a European city transplanted to our continent, and in many aspects Argentine has a higher standard of living than the United States. (2) The second group is the opposite of the first. (3) The third is similar to the first, but has a low standard of living complicating sanitary problems. Here we place Chile.

### ANALYSIS OF MORTALITY RATES

In reality, Chile has no sanitary problems due to its geography. They are all derived from human convergence and civilization or, shall we say, lack of civilization. There were some malarial spots in the valleys encased in the northern deserts. They were eliminated by an efficient sanitary campaign and now require only control. On Easter Island, in the middle of the Pacific, there is a handful of lepers forgotten by the gods. Toward the south there is hookworm in the coal mine shafts which extend under the sea and provide a humid and warm atmosphere propitious to the worms. The hookworm, it may be mentioned is the Ankilostoma duodenalis from Europe and not the Necatur Americanus of this continent, because these mines were developed by Scotsmen who brought the worm. It is rightly said that the visiting card records one's name and the intestinal parasites the place of one's origin. Recent investigations have brought to light endemic centers of Chagas disease, the extent of which has not yet been ascertained. In spite of the fact that the whole country is a coast line, there are cases of endemic goiter in some regions where the mountain ranges ward off the sea breezes, but not any of these factors or all of them put together really weigh in our sanitary scales.

Tropical diseases enjoy a well deserved universal prestige. Huge quantities of money have been allotted to them because their eradication suited purposes of economic development and colonization. The truth is that if the same generosity and aggressiveness had been deployed against syphilis, for example, the situation would now be different. The same happens with the former as with cattle diseases. Even in our country there is always money to fight foot and mouth disease or anthrax, but not always for human problems. This state of affairs induced Theobald Smith to say that farmers are more interested in the health of their cattle than in that of their children, which statement was no doubt a sign of momentary despair.

With apparent pride we Chileans claim to have one of the highest infant mortality rates in the world. We actually appear on the list after Malta and Gozo and Burma which cannot be taken into account (fig. 3). These high rates can be explained only if we accept that among us a deficient public health service exists side by side with a good organization and much honesty in the recording and publication of statistical data. As a matter of fact, there have been eleven censuses from 1835 to 1940. Long before the whole of the United States was included in the registration area, we knew of all deaths in our country, since it is forbidden to bury a corpse without exhibiting a death certificate.[8] Although still defective, birth registration is stimulated by the social laws which grant family allowances according to the number of children. Because medical services attend a considerable proportion of the population, we have fairly reliable information on venereal diseases, tuberculosis and heart diseases, that is, those within the province of our social laws.

Incidentally, we may point out that Chile is the pathologist's paradise. The approximately thirty thousand hospital beds that we have are dependent on a central authority, and all patients who die in them are subjected to autopsy. For this regulation to be waived a judge's permission must be obtained, which time does not always allow. Foreign doctors who visit us are always surprised by the number of autopsies and the ample possibilities for holding joint meetings and investigations on clinical and pathological subjects.

Do not believe that I am being carried away by national sentiments. There is no plausible reason for Chile, with a homogenous race and benign climate, to have a higher infant mortality rate than some of her neighboring countries that do not enjoy these privileges and are not more civilized. In some of these, infant mortality has been halved just because the government has changed hands and much of the information published is based on estimations or surveys undertaken at a given moment. It is amusing sometimes to read the commentaries of some of those terribly lofty English newspapers on the high number of crimes or passion tragedies that there are in Chile. As a matter of fact, we are not more criminal and probably not more passionate than other American nations, but we record our data and are not self conscious about publishing them.

Nevertheless it cannot be denied that our infant mortality rate was excessive, so much so that it came down considerably within the last few years under the influence of rational measures: from 226.4 in 1936 to 142.8 in 1946.[9a] An amendment introduced in social legislation in 1937 allows for the care of working women and workmen's wives during pregnancy and childbirth, and of their children during their first two years of life. Thus, 25 per cent of the children of this age group and 16 per cent of the pregnant women are under supervision. This control includes medical attention as well as a supply of milk. For the specialists an interesting detail is here pointed out. The causes of infant mortality are ordinarily classified in three large groups: the enteric infections of the summer, infections of the respiratory tract in winter and, thirdly, causes peculiar to newborn infants. In countries with bad sanitary conditions and high infant mortality rates, enteric infections predominate and are the first to be reduced when measures are taken. The infections of the respiratory tract follow, and structural causes are prone to increase in proportion and absolutely under the influence of modern living, childbirth with medical interference, obstetric interventions and lying-in hospitals. In accordance with the general principle, enteric infections have predominated in Chile, but the descent has been due mainly to causes peculiar to newborn infants.

Chile has a very high rate of illegitimacy, around 30 per cent; the rate of Caracas is, however, 60 per cent. This naturally affects the infant mortality rate, but not so much as it would in the United States and Western Europe, because among us it is not necessarily the consequence of loose morals. Many couples, joined in a stable monogamous relationship, simply do not bother to get married. That influence may also be exaggerated because among babies born out of wedlock there is a predominance of first-born infants which are the ones most likely to die. Our families are still large, and the seventh or eighth child runs a worse risk. This fertility implies that women begin to procreate earlier and finish later than in the United States, and in the extreme ages the risks are noticeably greater.

Our tuberculosis mortality rate is shamefully high and holds the second place among all causes of death. Although we have more beds per person than the United States has,[10] these are insufficient compared with the number of patients.[11] The rule holds for all Latin America, probably with the single exception of Venezuela. To protect the tuberculosis patients we have a special set of laws, according to which all our workers and employees who suffer from curable tuberculosis have a right to rest, receiving full salary, until the disease has been cured or become incurable. The sums of money that this work and others entail are insufficient for the necessities but large for our economic possibilities. Their effect is just beginning to be felt in the mortality curves that have remained high and horizontal for the last forty years. It may be due to the fact that they have been carried out during the epidemic phase, that is to say, when the infection was propagated profusely owing to industrialization. The mortality curve has a cyclic tendency, with an oscillation period of about thirteen years, a commentary on which does not belong here.[11]

If in France Mademoiselle Marie Petit marries Monsieur Jean Simon she becomes Mme Marie Simon née Petit. If in the United States Miss Mary Smith marries Mr. Peter Jones she becomes Mrs. Peter Jones or Mrs. Mary Jones or Mrs. Mary Smith Jones. If señorita María Pérez marries Juan Torres she becomes señora María Pérez *de* Torres. A somewhat loose interpretation of these facts may allow us to surmise that the French and American customs wanted the personality of the woman to merge with that of her husband and form a new one. The Spanish custom, on the contrary, seems to want the woman to become merely a possession of the man. Keep in mind this symbol to understand the problem of our venereal diseases, which are also prevalent and will not diminish very noticeably unless we take firm steps to put an end to prostitution. If you say something of this sort in your countries, your audience will shrug their shoulders and take you for a dreamer.

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[8] Cabello, O.: Población y natalidad, Rev. chilena de hig. y med. prev. **6**: 221-258 (March) 1944.

[9] (*a*) Romero, H., and Moroder, J.: La Población y el medico: Los recursos económicos de la colectividad; VI. Mortalidad infantil, Prev. Soc. **13**: 377-394 (Oct.-Dec.) 1946.

[10] In 1940, there were in Chile 0.9 free beds per thousand inhabitants and in the United States 0.63 free and 0.76 between free and paid beds.

[11] Romero, H., and Moroder, J.: La población y el medico: Los recursos económicos de la colectividad; VII. Lucha contra la tuberculosis, Prev. Soc. **14**: 40-54 (Jan.-March) 1947.

In 1940 Chile organized the National Service against Venereal Diseases, pooling the resources of the different institutions and establishing a uniform plan. The first obstacle to be overcome was the individualistic tendency of the doctors, who would rather rely on their own experience than on the most overwhelming statistical data. The program produced immediate effects on morbidity rates, especially on new infections. Moreover, Chile, which is the only country south of the Rio Grande that prepares neoarsphenamine and oxophenarsine hydrochloride for its own consumption and for exportation, was the second country after the United States to accumulate 1,000 cases of massive treatment.

In 1945 the prevalence of syphilis was similar in the United States and in Chile. Thus, the National Medical Service for Employees found 5.2 per cent of positive serologic reactions in 112,000 persons who came for their first examination. In the first 2,000,000 conscription examinations, the rate of positive reactions in the United States was 4.6: 18 per cent among whites and 24.5 per cent among Negroes. The decrease in syphilis mortality can be seen in table 2.

TABLE 3.—*Expectation of Life at Birth*

| Area | Period | Complete Expectation of Life at Birth, Yr. |
|---|---|---|
| Chile | 1939-1942 | 41.8 |
| Chile | 1929-1932 | 40.6 |
| Chile | 1919-1922 | 31.5 |
| Argentina (Buenos Aires) | 1914 | 46.4 |
| Brazil (federal district) | 1939-1940 | 43.0 |
| Brazil (São Paulo) | 1939-1940 | 50.1 |
| Colombia (7 departments) | 1939-1941 | 46.3 |
| Costa Rica | 1927 | 40.7 |
| Mexico | 1929-1933 | 37.2 |
| Peru (Lima) | 1933-1935 | 39.0 |
| Venezuela (Caracas) | 1937-1939 | 44.2 |
| United States | 1939-1941 | 63.6 |
| England and Wales | 1937 | 62.3 |
| France | 1933-1938 | 58.8 |
| Germany | 1932-1934 | 61.3 |
| Spain | 1930-1931 | 51.2 |
| Russia (Europe) | 1926-1927 | 44.4 |

All the infectious diseases together do not weigh heavily on the sanitary scales[12] and, as everywhere, have diminished noticeably. If tuberculosis is included among them it naturally occupies an increasingly larger proportion, well over 50 per cent. In the United States as well as in Australia and New Zealand, for instance, national groups brought with them from Europe their genealogic lines and immunologic experience. They are what we would call Europe overseas, but we, a new race, suffered catastrophic epidemics. We had cholera, plague, smallpox and, recently, meningococcic meningitis. Thanks to compulsory vaccination, smallpox has disappeared completely, although it exists in the three surrounding countries. Typhus is virtually dominated and can never again reach epidemic proportions, because we have a good control service and experience in DDT (dichlorodiphenyltrichloroethane) application. The meningitis epidemic of 1941-1942 had a comparatively low fatality (10 per cent), owing to the rational use of sulfonamide drugs. As in other countries, the incidence of infections of the nervous system has begun to increase, such as encephalitis, poliomyelitis, and polineuritis.

As infant mortality and mortality rate for infectious diseases and for all causes diminish, life expectancy increases (table 3). Between 1920 and 1940 we gained 10.3 years: as a matter of fact, life expectancy at birth went up from 31.5 to 41.8 years.[6]

Because our life expectancy is low, we have that young population we spoke of. On the other hand, the probabilities of survival at 70 years of age are almost the same as in the United States and have hardly changed in one country and the other ever since we first had reliable information. Therefore, it is preposterous to say that in Chile, or in South America as a whole, people do not attain advanced ages. Indeed, those who manage to avoid the causes of the pathetically high rates of infant mortality, tuberculosis in adult age and other causes of death, and reach a mature age, have then even better probabilities of survival than have inhabitants of North America.

In 1940, our life expectancy was smaller than in the United States in 1900. We may well imagine that our curve will imitate that of the United States in some past period. Warren S. Thompson has repeatedly pointed out the demographic analogy between countries and said that "the past" of one may be "the future" of another.

There are other problems occupying a foremost position in our minds. The first of these is public health education, understood not as a specialty but as the embodiment of knowledge concerning health in the average education. Our expression seems more adequate: education for health (*educación para la salud*). It should be incorporated in high school education so that it reaches politicians. Until our citizen definitely gives up completely the fatalistic attitude and understands that it is possible to defend and promote health, our work will not be very rewarding.

It could be said that we must first improve the production and distribution of food stuffs. However, it seems much more urgent that the people learn how to eat. This is not a country for the gourmet, who may find more satisfaction in Argentine, Perú, Mexico, Chile and other countries; but the common diet is incomparably more rational than in any other part of America. Usually our people eat according to their prejudices and traditional habits. The practical application of modern knowledge in this matter would pay better dividends than any other activity.

There is plenty to be done concerning the housing problem. Much could be told of how our colonial towns are being modernized and about the patios disappearing, while small skyscrapers and apartment houses are being built. But these are essentially national affairs, and our sanitary functions consist mainly in convincing the authorities that neither civilization nor health is possible without acceptable dwelling places, that a large proportion of the citizens cannot build their own houses and that others cannot even pay to live in them, whether they buy or rent them.

Although a high proportion of the population has drinking water and adequate means for excreta disposal, our mortality rates for enteric infections are still too high. We have endeavored to reduce them by means of a permanent immunization campaign, which means, as we say, bread for today and hunger for tomorrow. Foreigners who visit us or come to stay among us are strongly advised to get vaccinated, as they run far greater risks than we do. Recently efforts have been made to improve food control, diminish the number of flies and educate the population, measures that are making their influence felt. The considerable success of the Division of Health and Sanitation of the Institute of Inter American Affairs in our countries is largely due to the fact that they have contributed toward the progress of our water supplies and sewage systems. It would have been greater if they had not been so reluctant to bury money in the ground, an investment that is invisible but which produces handsome revenues.

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[12] Romero, H., and Moroder, J.: La población y el medico: Los recursos económicos de la colectividad; IX. Enfermedades infecciosas, Prev. Soc. **14**: 244-261 (July-Sept.) 1947.

COMMENT

Public health is today a science interesting and useful enough to attract persons of high quality. The mere enunciation of its achievements, its projects and unsolved problems could well be the subject of long discussions which would surely interest any cultured physician. For success, we need many more specialists, and to form them we have our School of Public Health, the achievements of which will make an attractive story. As just one example of what modern policy can produce, we may say that in one of our health units, founded and run with the help of the Rockefeller Foundation, the mortality rate among children under control is considerably lower and similar, or parallel, to that of New York. The foregoing account should lead one to the conclusion that Chile is a young country the characteristics of which correspond to a certain phase of demographic evolution and the sanitary conditions of which could be considerably improved by our taking advantage of foreign experience and applying it to our conditions and peculiarities. Money does not matter, because when well spent it can never be wasted. Besides, these expenses are self liquidating. On the contrary, it is important to convince both the politicians and the people that public health is no longer a mere expression of common sense but that it requires knowledge and technic. Doctors can help toward this end.

The reader will also have concluded that Latin America is a kaleidoscope. Large parts of it have a common origin, a mixture in different proportions of similar races and languages. Under the influence of geographic conditions and after over a century of independent life, they have become very much differentiated. Men of good will in our country believe that they should draw more closely together, among themselves and with Anglo-Saxon America. This objective will be considerably enhanced by the transportation and communication facilities and may be perfected by means of mutual knowledge and understanding. To this purpose we have devoted an enormous amount of time and effort.

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**Use of Anticoagulants in Coronary Thrombosis.**—On the basis of data compiled from 800 cases of coronary occlusion with myocardial infarction, it is concluded that patients treated with anticoagulant therapy in addition to the conventional forms of therapy experience a death rate and incidence of thromboembolic complications during the first six weeks period following an attack markedly lower than those experienced by patients treated solely by conventional methods. Anticoagulant therapy should be used in all cases of coronary thrombosis with myocardial infarction unless a definite contraindication exists. In the absence of hemorrhagic conditions the hazards from hemorrhage are not sufficient to contraindicate the use of anticoagulants in coronary occlusion, provided that there are facilities for adequate laboratory and clinical control.—From an address by Dr. Irving S. Wright delivered before the Graduate Fortnight of the New York Academy of Medicine, Oct. 5, 1948.

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# Clinical Notes, Suggestions and New Instruments

## SPONTANEOUS RUPTURE OF THE STOMACH

### Report of a Case

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Spontaneous rupture of the stomach is a catastrophe which many surgeons and many more practitioners of other branches of medicine would not include among the possibilities if they were called on to attend a patient presenting the typical picture of this calamity. Of the 30 or more cases reported in the literature, there was not 1 case in which the condition was diagnosed before operation or autopsy; yet the picture is distinctiveand not presented by any other abdominal emergency. The reason for failure to name the accident at fault is undoubtedly lack of knowledge that it can occur. It is so rare that most practitioners have never heard of it and therefore do not list it as one of the possibilities when presented with the problem of diagnosis.

This case is presented not only as a contribution to the knowledge of the causes and characteristics of the condition, but also in the hope that some reader may remember the possibility if he is called on for treatment.

The following case is cited as a typical example of the picture presented by spontaneous rupture of the stomach, and also happens to be a case with the commonest antecedent train of events.

REPORT OF A CASE

A nun, aged 61, in the hospital with which I am associated, was accustomed to taking a dose of citrate of magnesia every few days to relieve abdominal discomfort which she attributed to chronic constipation. At 3 p.m. on May 7, 1946, she took one bottle of citrate of magnesia, and about 7:30 p.m., because she still had discomfort, she went to the hospital pharmacy and asked the pharmacist's assistant for sodium bicarbonate. She was given about a tablespoonful in an unusually large glass of water. Immediately after drinking it, she collapsed on the floor in severe agony, she became cyanotic and dyspneic; the skin became cold and clammy and the pulse imperceptible. The intern was called and noted severe abdominal tenderness and rigidity. The abdomen was silent. Her condition improved a little in that the pulse became barely perceptible, and she was scheduled for operation within two or three hours.

However, her condition became rapidly worse, continuing while she was on the operating table and before any anesthetic was administered, and she became unconscious. Decision was made to operate on account of the almost certain presence of a visceral perforation. Rupture of the stomach was not even considered, but the preoperative diagnosis was "perforation of a hollow viscus."

Some excess of fluid with some flakes of fibrin floated in it was seen, and the serosa was injected. Not until the lesser peritoneal sac was opened, however, was the diagnosis made. Here was found foamy white material, which was undoubtedly sodium bicarbonate with enclosed fine gas bubbles which boiled out through the incision in the gastrohepatic omentum. Chewed undigested food was delivered from the lesser peritoneal cavity by the handful. Meat and grapefruit particles were recognized. The rent in the stomach, about 5 cm. in length, was seen running longitudinally at the midportion of the lesser curvature. No evidence of disease of any layer of the wall was observed.

The laceration in the stomach was sutured, and, while the abdominal wound was being closed, the condition of the patient became rapidly worse, in spite of the administration of 600 cc. of plasma. Death ensued before the closure was completed.

COMMENT

The degree of shock, the intensity of the prostration and the suddenness of onset are dramatic and not simulated by any other type of perforation, not even by pancreatic necrosis, there being not quite the abrupt precipitation of these physical signs in the latter condition. Ruptured ulcer, aside from the probability of an antecedent history of ulcer, does not give the degree of severity of symptoms by a wide margin. Any case with the history of ingestion of sodium bicarbonate followed by sudden abdominal pain and severe and dramatic onset of shock and prostration should be immediately considered a case of spontaneous rupture of the stomach.

The condition is rapidly fatal in the vast majority of cases. In 31 cases collected by Lemmon and Paschal[1] in none was the condition diagnosed preoperatively or before autopsy. Of the 31 patients only 5 were operated on and only 2 of these recovered. Of the ones not operated on, 2 recovered spontaneously, with abscess and fistula formation.

Spontaneous rupture of the stomach in the cases reported occurred along the lesser curvature, where the weakest part of the muscular wall would seem to be found. In my case, as well as the others reported, there was no evidence of any disease of the area. The mechanism of rupture appears to be a rather abrupt release of carbon dioxide caused by the action of acid on the sodium. The acid may be hydrochloric or acids of fermentation or, as in this case, the citric acid of the cathartic. The stomach is full in all cases. It is probable that there is associated pylorospasm prompting the ingestion of the sodium bicarbonate. The patient likely has some cardiospasm or closure of the cardiac end caused by angulation also, in which case the distention of a full stomach with sodium bicarbonate is so sudden that it cannot be released quickly enough through the natural outlets.

The literature on rupture of the stomach is not voluminous. Petry reported 8 cases in 1896 and comparatively few have been reported since that time. It appears to be of rare occurrence and fortunately so.

### SUMMARY AND CONCLUSIONS

The following points can be deduced from an analysis of reported cases: Aside from trauma, rupture occurs from rapid release of gas in the stomach, a few from fermentation of gastric contents, but most from the release of carbon dioxide by the action of acids on ingested sodium bicarbonate. The stomach in this latter condition is always full. Some spasm of the pylorus and cardia probably is necessary. The shock and prostration are severe. The condition has never been diagnosed preoperatively, and the mortality rate is high.

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[1] Lemmon, W. T., and Paschal, G. W.: Rupture of the Stomach Following Ingestion of Sodium Bicarbonate, Ann. Surg. **114:** *997-1003* (Dec.) 1941.

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## Council on Pharmacy and Chemistry

### NEW AND NONOFFICIAL REMEDIES

*The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.*

AUSTIN SMITH, M.D., *Secretary.*

**SULFADIAZINE** (See New and Nonofficial Remedies 1947, p. 120).

The following dosage form has been accepted:

PITMAN-MOORE, INDIANAPOLIS

**Solution Magmoid Sulfadiazine:** 30 cc., 60 cc., 360 cc. and 3.84 liter bottles. Preserved with benzoic acid 0.25 per cent.

**OLEOVITAMIN A-U.S.P.** (See New and Nonofficial Remedies 1947, p. 502).

The following dosage form has been accepted:

AMERICAN PHARMACEUTICAL CO., INC., NEW YORK

**Capsules Oleovitamin A:** Each capsule contains 25,000 U.S.P. units of vitamin A derived from fish liver oils.

**DIHYDROXY ALUMINUM AMINOACETATE** (See THE JOURNAL, July 31, 1948, p. 1226).

The following dosage form has been accepted.

EATON LABORATORIES, INC., NORWICH, N. Y.

**Tablets Aspogen:** 0.5 Gm.

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## Council on Foods and Nutrition

*This paper was prepared at the request of the Council and is one of a series appearing in* THE JOURNAL. *Later the entire series will appear in book form as the Council's Handbook of Nutrition.*

JAMES R. WILSON, M.D., *Secretary.*

# IODINE IN NUTRITION

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During the early years of the present decade, perhaps even in the still turbulent days of 1948, there could be seen on the highways of the Chinese province of Yunnan numbers of cretins, as well as other persons little more fortunate, displaying prominent goiters. Men and women working on the Burma Road were showing an incidence of thyroid enlargement often as high as 80 per cent.[1] Residence in the Yunnan district for as little as six months, it appears, would suffice to induce such deformity in susceptible persons.

For an understanding of this striking phenomenon, in many respects similar to the once epidemic proportion of goiter and cretinism in Berne, Switzerland, it is necessary only to remember that the Japanese were, in the early 1940's, still in control of strategic areas of China. As a consequence, the hinterland of China was cut off from its former coastal supply of salt with a high content of iodine. Not only the Yunnan area itself but also other large sections of Free China were thus forced to depend on Yunnan salt, which is very low in iodine content.[1]

This remarkable incidence of goiter in Yunnan, resultant to the military stranglehold on those areas furnishing the only supply of salt with a high iodine content, is no mere coincidence. The inverse relation between a high incidence of goiter and cretinism and the amount of iodine found in the soil of a given region, in its water, its salt and mineral deposits, and particularly in its food, has long been known. Repeatedly this observation has been supported by similar massive evidence.

Thus, it becomes necessary to appreciate the powerful role which iodine plays in human biologic processes. This element is found throughout the world in varying proportions. It occurs in minute quantities in the very air one breathes. It is dispersed in the water. It exists in the soil and in the rocks. It is present in nearly all living things, both plant and animal. Not the sea, as is popularly believed, but the earth's crust is the major storehouse of iodine.[2]

Endemic goiters are observed in great numbers among the inhabitants of those regions deficient in iodine. The highest incidences of goiter have been observed in the Alps, the Pyrenees and Himalayas, the Thames Valley in England, certain inhabited districts of New Zealand, in the region of our own Great Lakes and in the Pacific Northwest.[2b] Throughout the United States there occur varying degrees of available iodine,

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[1] Robertson, R. C.: The Problem of Endemic Goiter in Yunnan Province, J. Clin. Endocrinol. **1:** 285, 1941.

[2] (a) Orr, J. B., and Leitch, I.: Iodine in Nutrition, Medical Research Council, Special Report Series No. 123, London, His Majesty's Stationery Office, 1929. *(b) McClendon, J. F.: Iodine and the Incidence of Goiter, Minneapolis, University of Minnesota Press, 1939.*

depending on local geologic conditions of the soil and waterways. A high incidence of goiter is especially noteworthy in the Central Plain of North America, where regional iodine is low. On the sea coasts, where large amounts of high iodine-containing sea foods are consumed, there is a minimum of endemic goiter.

The water of the Great Salt Lake resembles the ocean in its iodine concentration and yet, unlike the ocean, supplies neither vegetation nor fish for human consumption.[2b] Consequently, it should cause no great wonderment that the inhabitants of the Great Salt Lake area have a high incidence of goiter; for the problem of endemic goiter largely resolves itself into a consideration of the amount of mammalian iodine consumption within any given region.

Iodine is ingested essentially from the food supply and to a lesser degree from ordinary salt or from water.[2a] About 14 micrograms daily was formerly thought to represent the difference in iodine intake between [illegible] nongoitrogenous regions.[3] However, [illegible] in iodine consumption have become even less pronounced as the interstate transportation of food, drinks, vegetables, fruits and fertilizers has increased.

The amount of iodine found in the local drinking water is a frequently used measure of the iodine content of the regional soil and consequently of its fruits, grains, grasses and vegetables. It is not important as a source of nutritional iodine save in unusual circumstances.[2a] Moreover, when the country is divided into sections according to the occurrence of iodine within its waters, it will be found that where the iodine content is low, the incidence of goiter is correspondingly high. Such regions are to be found in a section extending from Oregon to the western part of Maine and from Nevada to the western part of Virginia.[2b] The Michigan studies revealed that the incidence of goiter in a given locality varies inversely with the amount of iodine found in its water.[4]

The iodine in food is the single most important factor determining the extent of endemic goiter prevalent throughout a given area. Thus, it is readily understood why Japan, though geologically low in iodine, presents an outstanding example of a goiter-free area, while Formosa, similarly depleted in iodine, has a high incidence of goiter among its population. The absence of goiter in Japan results from a Japanese taste for seaweed, which is therefore extensively imported and consumed in large quantities.[2b] Seaweed is rich in iodine content.

In South Carolina, where the vegetables are considerably higher in iodine content than those of the Northern and Western states, the incidence of goiter is low.[5] However, the interstate importation of canned foods and other food products does not, to any apparent degree, help solve the goiter problem in the North and West, for the cotton-growing and tobacco-growing South as a whole, comprising a great part of the goiter-free United States,[6] fails to produce sufficient food and feed crops even for its own needs.[6b] Canned goods must therefore be imported from sections of the country where the soil is poor in iodine.[6]

The iodine concentration of the milk produced in a given locality is another good index of endemic goiter in that region.[7] The amount of iodine which the lactating mammal consumes and then puts out in her milk, in the absence of any supplemental iodine, depends on the amount of iodine in the soil and its vegetation.[8] Likewise, the egg is dependent on the chicken for its iodine content and the chicken on the products of the "good earth." [7b]

### IODINE CONTENT OF THE HUMAN BODY

A normal man weighing 70 Kg. may be reasonably estimated to contain about 50 mg. (less than a grain) of iodine. This is equivalent to about 1 part in 1,400,000 of body substance. Iodine thus forms less than 0.00008 of 1 per cent of the total body weight. Nevertheless, every cell in the body is said to contain some iodine.[9]

### IODINE AND THE NORMAL THYROID GLAND

The thyroid gland is a principal storehouse for the iodine of the human body. Weighing ordinarily about 25 Gm. and containing about 10 mg. of iodine, it normally maintains an iodine concentration of around 40 mg. per hundred grams. It was shown long ago by Marine and Lenhart that when this concentration falls below 10 mg. per hundred grams hyperplasia ensues and goiter is likely to develop.[10]

No other organ of the mammalian body has the power of iodine concentration possessed by the thyroid gland. The whole blood iodine averages less than 1 part in 25,000,000, while the thyroid gland normally contains approximately 1 part in 2,500. This indicates that the thyroid gland can concentrate the iodine it obtains from the blood by a factor of at least 10,000.

Within the colloid in the alveoli of the thyroid gland iodine is stored in a combined form with the amino acids, diiodotyrosine and thyroxine. These contain, respectively, 59 and 65 per cent iodine. The accepted facts of thyroid function indicate that iodine is selectively absorbed by the active thyroid gland. Furthermore, in some measure the glandular function is regulated by its iodine content. Studies with radioactive iodine have shown that ingested iodine is quickly brought to the gland by the blood stream and rapidly converted by the thyroid cells into complex organic compounds. Within a matter of only a few hours these organic iodine compounds, just manufactured by the cellular activity of the thyroid gland, may return to the circulation.[11]

A basic peculiarity of this regulating gland, first observed before the turn of the century,[12] is its low iodine concentration when its weight is high and, inversely, a high iodine concentration when its weight

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3. Hercus, C. E., and Roberts, K. C.: The Iodine Content of Foods, Manures and Animal Products in Relation to the Prophylaxis of Endemic Goiter in New Zealand, J. Hyg. **26:** 49, 1927.

4. (*a*) Report of the Initial Meeting of the Study Committee on Endemic Goiter of the American Public Health Association, Detroit, *June 14-15, 1941.* (*b*) Study of the Effect of the Use of Iodized Salt on the Incidence of Goiter: First Official Report of the Goiter Survey of Michigan, J. Michigan M. Soc. **36:** 647, 1937.

5. Weston, W.: Foods in the Solution of the Goiter Problem, South. M. J. **23:** 479, 1930.

6. (*a*) McClendon.[2b] (*b*) Olesen, R.: Endemic Goiter, Public Health Bulletin, 192, Washington, D. C., Government Printing Office, 1929, p. 27. Opportunity or Calamity, editorial, Food Industries, **3:** 467, 1931.

7. (*a*) Orr and Leitch.[2a] (*b*) Shore, R. A., and Andrew, R. L.: Goiter in School Children: The Incidence of Goiter in School Children in Relation to the Amount of Iodine in Soil and Water in Certain Districts of the North Island in New Zealand, Bull. Hyg. **5:** 94, 1930.

8. (*a*) Shore and Andrew.[7b] (*b*) Meyer, J. H.: The Iodine Content of Milk, Thesis, Columbus, Ohio, Ohio State University, Department of Surgical Research, 1940.

9. Justus, J.: Ueber den physiologischen Jodgehalt der Zelle, Virchows Arch. f. path. Anat. **170:** 500, 1902.

10. Marine, D., and Lenhart, C. H.: Further Observations of the Relation of Iodine to the *Structure* of the Thyroid Gland in the Sheep, Dog, Hog and Ox, Arch. Int. Med. **3:** 66, 1909.

11. Perlman, I.; Chaikoff, I. L., and Morton, M. E.: Radioactive Iodine as an Indicator of the *Metabolism* of Iodine. I. The Turnover of Iodine in the Tissues of the Normal Animal with Particular Reference to the Thyroid, J. Biol. *Chem.* **139:** 433, 1941. Perlman, I.; Morton, M. E., and Chaikoff, I. L.: II. The Rates of Formation of *Thyroxin* and Diiodotyrosine by the Intact Normal Thyroid Gland, ibid. **139:** 449, 1941.

12. Baumann, E.: Ueber den Jodgehalt der Schilddrüsen von Menschen und Thieren, Ztschr. f. physiol. Chem. **22:** 163, 1896.

is low.[13] Moreover, the thyroid iodine content is low with either a high incidence of nodule formation or a high percentage of epithelial proliferation. It is low with increased height of the follicular epithelium of the thyroid gland, lymphocytic infiltration and with the occurrence of degenerative changes.[13b]

The iodine which a person absorbs from his daily food is the principal factor which determines the iodine content of the thyroid gland and overshadows other factors, such as species, age and sex. Small differences in the local food supply of iodine are reflected in the iodine content of the gland.[2a]

Since iodine intake is so largely dependent on the soil and consequently on plant iodine, the thyroid iodine concentration varies with the geographic distribution of iodine. Thus, in nongoitrogenous Texas the fat-free dried thyroid contains 6 mg. of iodine per gram, whereas in goitrogenous North Dakota it contains only 3.2 mg. per gram.[14] There are seasonal variations in the amount of iodine found in the thyroid gland,[13b] but these may be attributed to seasonal variations of the iodine available in the soils and foodstuffs.

## IODINE AND THE PATHOLOGIC THYROID GLAND

The ultimate cause of endemic goiter and its sequelae is not clear. The immediate cause is a deficiency of iodine, an element necessary in the production of the thyroid hormone with its high content of iodine. This iodine deficiency may be absolute, as in areas where the iodine intake is subnormal, or the deficiency may be relative.[15] Thus, iodine deficiency may ensue, even with a normally adequate iodine intake, whenever gastrointestinal absorption is inadequate. Other uncompensated circumstances, by interfering with the normal destination and metabolism of iodine, or by increasing the demand for this element, have the same end result. Infectious processes, the ingestion of toxic substances or of certain drugs and a diet high in calcium are among the known offenders. The physiologic stress of puberty, of pregnancy and of lactation increases the need for thyroid secretion. When these increased needs are met with an increased supply, resultant pathologic change is forestalled, as can be demonstrated in the thyroid histologic observations in pregnant animals fed sufficient supplemental iodine.[16]

The microscopic changes in the thyroid gland closely parallel the chemical observations.[13b] Baumann and Roos [17] and also Oswald [18] were the first to observe that if iodine is withheld compensatory hypertrophy of the thyroid occurs. They noted that the iodine content of the thyroid is proportional to the amount of colloid present and that in colloid goiter the concentration of iodine is significantly below that seen in the normal gland. When normal or goitrous thyroid glands obtained from iodine-deficient regions are compared with other normal or goitrous glands, it is observed that the thyroids from the goitrogenous regions are the largest and have the highest incidence of nodule formation, the smallest follicular size and the lowest iodine content.[13b]

If iodine is administered to a person who has either a normal thyroid gland or even colloid goiter, the iodine content of the gland increases with no notable change in its structure. When iodine is withheld from the experimental animal, the iodine content of the gland gradually decreases, and in the wake of thyroid lobectomy there will be hyperplasia of the remaining lobe. The administration of iodine prevents this sequence of events both prior to and following lobectomy.[10]

Remington has shown that it is possible to produce enlarged and hyperplastic thyroid glands in young rats fed for five weeks on a diet extremely low in iodine. The addition of iodine to their diet prevents the development of goiter. However, storage of iodine is insufficient in rats fed this supplement during their first four weeks of life, since it does not prevent the development of goiter when iodine is later withdrawn. Varying the calcium content of the ration given the rats, or its calcium-phosphorus ratio, does not affect the degree of goiter produced. Likewise, the omission or addition of vitamin D is of no consequence.[19]

## IODINE IN THE EXTRATHYROID TISSUES AND BODY FLUIDS

Iodine is present in organs other than the thyroid gland. It is also found in varying concentration in other body tissues and in the various body fluids. Its role there is less clearly understood. Of the total iodine content of the human body about one half can be assigned to the muscles, one fifth to the thyroid, one tenth to the skin and one seventeenth to the bones.[20]

Because of the close interrelationship of the other endocrines with the thyroid gland, their iodine content becomes even of practical interest. There is some question whether they actually exceed the nonendocrine tissues in iodine concentration. Certain studies indicate that they do.[21] More recent work on mammalian tissue iodine [13b] and on the iodine content of normal human tissues [22] was not confirmatory. Moreover, the "master gland," the pituitary, which bears a reciprocal relation to the thyroid, so well appreciated, has a low iodine content. This is similarly true of the central nervous system itself.[23]

Considerable importance has been attached to the role played by the liver with respect to iodine.[24] Nevertheless, its actual function in this regard is still an enigma. The conviction that this significant organ, which affects so many of the body's vital activities, also exerts an influence on the metabolism of iodine, arises from various experimental and clinical observations. Thus, bile is consistently high in iodine content,[23] and except for the thyroid and hair contains, in fact, the highest iodine concentration in the human body.[22] Moreover, elevation of the blood iodine, occasionally to a considerable

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13. (*a*) Marine, David and Lenhart.[10] (*b*) King, J. D.: The Iodine Content of the Normal Thyroid Gland Correlated with Its Histology and the Iodine Content of Other Normal Body Tissues in Central Ohio, Dissert., Columbus, Ohio, Ohio State University, Department of Surgical Research, 1940.

14. Fenger, F.; Andrew, R. H., and Vollertson, J. J.: Geographic Location and the Iodine Content of the Thyroid Gland, J. Am. Chem. Soc. **53**: 237, 1931.

15. Elmer, A. W.: Iodine Metabolism and Thyroid Function, London, Oxford University Press, 1938.

16. Schmelling, J. W.: Over de normale en vergroote Schildklier geduren de embryonale outwikkeling, bij den pasgebirene en pasgeborene en bij het jonge Kind in Nederland, Dissert., Utrecht, 1934.

17. Baumann, E., and Roos, E.: Ueber das normale Vorkommen des Jods in Thierkorper, Ztschr. f. physiol. Chem. **21**: 481, 1896.

18. Oswald, A.: Ueber den Jodgehalt der Schilddrüsen, Ztschr. f. physiol. Chem. **23**: 265, 1897.

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22. Libecap, I. L.: The Iodine Content of Normal Human Tissues, Thesis, Columbus, Ohio, Ohio State University, Department of Surgical Research, 1942.

23. King.[13b] Libecap.[22]

24. (*a*) Elmer.[15] (*b*) De Courcy, J. L.: Iodine Metabolism, Normal and Abnormal: Its Relation to the Reticulo-Endothelial System, Tr. Am. A. Study of Goiter, 1937, p. 133; Further Study of Blood Iodine Changes in Affections of the Gallbladder, Surg., Gynec. & Obst. **65**: 180, 1937; Iodine Content of Blood in Cholecystic Disease, Arch. Surg. **35**: 140, 1937.

degree, has been observed in patients with hepatic damage and in those with biliary tract disease.[24b] Recent investigation suggests a possible relationship of these phenomena to a newly found "antithyrotoxic" factor in liver, which presumably is a direct antagonist to the usual action of the thyroid hormone.[25]

The amount of iodine in the blood has for many years merited special consideration. It is an index of thyroid function and of iodine metabolism. It is a rough measure of the release of the thyroid hormone and of its rate of breakdown within the body after it has completed its function. With radioactive tracer methods, this significance has become even more clear. With improving technics in the fractionation of the blood and plasma iodine, means of distinguishing the circulating thyroid hormone from its breakdown products are emerging.[26] Meanwhile studies of the whole blood iodine and particularly of the protein-bound fraction serve along with determinations of basal metabolic rate to differentiate the various thyroid diseases from each other and to distinguish them from normal and nonthyroid clinical states.

Human blood normally maintains a fairly constant level of iodine. Fractionation studies reveal that about one fourth of this presumably represents the circulating thyroid hormone.[27] The other three fourths, consequently, would include the iodine of nutrition together with products of the breakdown of the thyroid hormone with its high content of iodine.

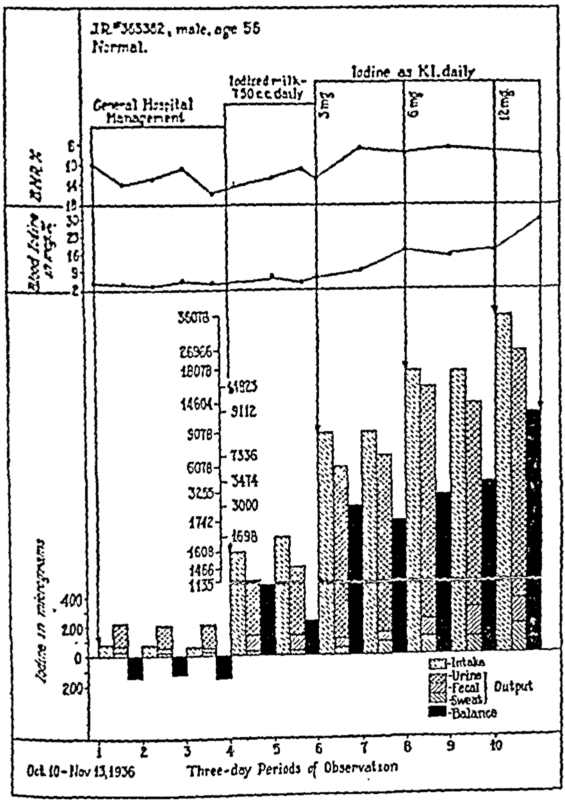

Fig. 1.—Chart showing levels in a normal subject for three day periods of observation.

Various values, ranging from 3 to 20 micrograms per hundred cubic centimeters, have been ascribed by different investigators to the normal iodine level in whole blood.[28] These vary with the method of iodine determination and the geographic area, as well as with certain physiologic factors. The blood iodine is significantly increased in pregnancy, in parturition and in toxic nodular and exophthalmic goiter (fig. 3), as well as in certain nonthyroid diseases.[29] Increased blood iodine levels observed in toxic nodular and exophthalmic goiter may be due, in part, to iodine medication, for the administration of iodine in all forms increases the circulating iodine in whole blood (fig. 1).[30]

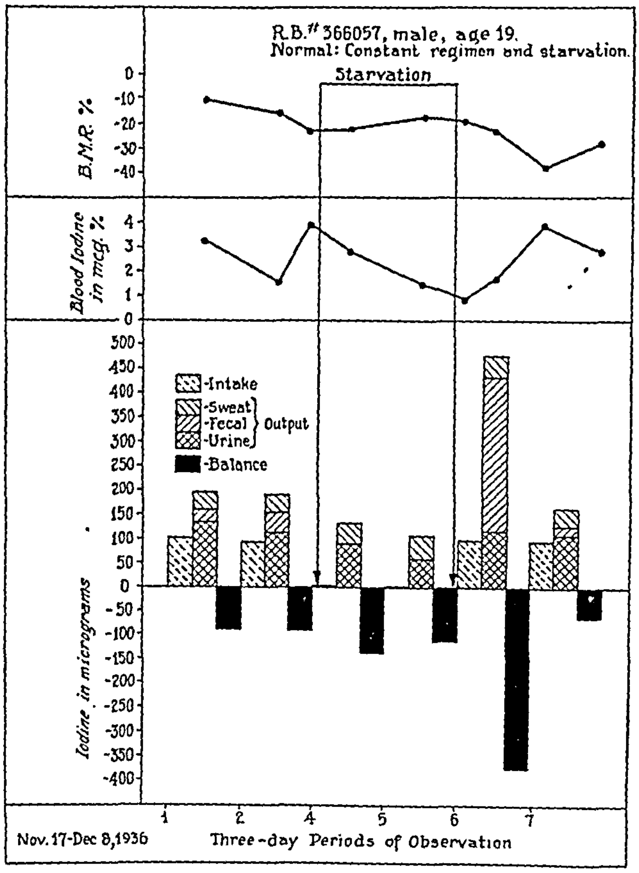

Fig. 2.—Chart showing levels in a normal subject during a constant regimen and starvation in three day periods of observation.

In hypothyroidism, the iodine in whole blood is often within normal limits.[29b] Nevertheless, the acetone-insoluble fraction, which presumably contains the circulating thyroid hormone, has an average value of about one-half normal.[27a] In nontoxic nodular goiter, this fraction may show an increase over normal [26] when the whole blood iodine does not.[29b]

The iodine concentration in the blood varies; however, it maintains a more constant level than the iodine in the thyroid.[15] The blood iodine does not always increase or decrease along with the basal metabolic rate.[31] The latter is less exclusively controlled by the thyroid gland than the circulating iodine and is, in fact, the resultant of a number of different metabolic processes. However, there is a significant correlation between the blood iodine and the basal metabolic rate in thyroid disease, noted particularly in those goitrous conditions associated with hyperthyroidism.[31b] as well as in nontoxic nodular goiter.[32]

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[25] Betheil, J. J.; Wiebelhaus, V. D., and Lardy, H. A.: A Nutritional Factor Which Alleviates the Toxicity of Ingested Thyroid Substance, J. Nutrition **34**: 431, 1947.

[26] Curtis, G. M., and Swenson, R. E.: The Significance of the Protein-bound Blood Iodine in Patients with Hyperthyroidism, Ann. Surg., **128**: 443 1948.

[27] (*a*) Davison, R. A.; Zollinger, R. W., and Curtis, G. M.: The Fractionation of the Blood Iodine, J. Lab. & Clin. Med. **27**: 643, 1942. (*b*) Curtis and Swenson.[21]

[28] Davis, C. B.; Curtis, G. M., and Cole, V. V.: The Normal Iodine Content of Human Blood, J. Lab. & Clin. Med. **19**: 818, 1934.

[29] (*a*) Curtis, G. M.; Cole, V. V., and Phillips, F. J.: Blood Iodine in Thyroid Disease, West. J. Surg. **42**: 435, 1934. (*b*) Curtis, G. M., and Fertman, M. B.: An Analysis of the Blood Iodine in Thyroid Disease, Arch. Surg. **50**: 207 (April) 1945; (*c*) The Blood Iodine in Nonthyroid Disease, ibid. **54**: 541 (May) 1947.

[30] (*a*) Orr and Leitch.[2a] (*b*) Elmer.[15] (*c*) Salter, W. T.: Endocrine Function of Iodine, Cambridge, Mass., Harvard University Press, 1940. (*d*) Curtis, G. M.: Iodine Metabolism in Toxic Goiter, J. Med. **15**: 148, 1934.

Thyroidectomy, in human beings or in experimental animals, exerts an important effect on the blood iodine. Immediately following total thyroidectomy there is a transient increase in the blood iodine, which persists for about thirty-six hours. Following total thyroidectomy the blood iodine decreases to about one-third normal.[33]

The urinary iodine is another measure of iodine metabolism. Under maintained basal conditions, together with a monotonous diet low in iodine, the normal adult excretes a surprisingly constant amount of iodine in the urine [34] (figs. 1 and 2). There is, however, geographic variation. The urinary iodine is higher in sea coastal regions than inland regions.[15] It is higher in the nongoitrogenous than in goitrogenous areas, as illustrated by the contrasting range in iodine excretion of 72 to 343 micrograms a day observed in five nongoitrogenous regions and of 27 to 64 micrograms a day in five goitrogenous districts. The average twenty-four hour urinary iodine excretion by normal adults in Central Ohio, a region of moderate endemic goiter, is 51 micrograms.[35]

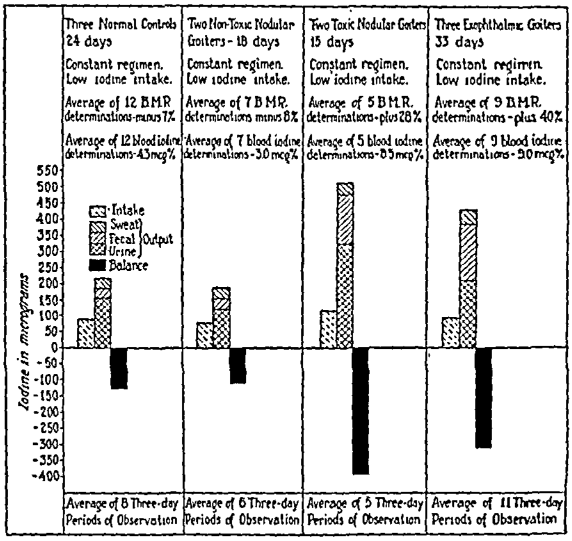

Fig. 3.—Chart showing levels seen in three day periods of observation for normal subjects and patients with various types of goitrous conditions.

Several factors tend to increase the amount of iodine lost in the urine. These include hyperthyroidism (fig. 3),[36] menstruation,[37] pregnancy,[38] surgical treatment [39] and the administration of iodine in nearly all forms (fig. 1).[40] On the other hand, fasting decreases the urinary excretion of iodine (fig. 2).[40b] The decrease is less when the fasting is preceded by an iodine-rich diet.[30c]

Iodine is also present in other body fluids. It has been demonstrated in the lymph, in cerebrospinal fluid, in perspiration (fig. 3), in chyle, in ascitic fluid, in pleural exudates and in milk. In milk it plays the important role of supplying the needed iodine to the growing infant. This iodine is lost at the expense of the mother's iodine stores [8b] and should be replaced, to maintain the health both of the child and of its mother. If iodine feeding is essential under normal conditions of stress and strain, then it is twice as important to the woman who bears a developing fetus or to the lactating mammal. The loss of iodine in milk results in depletion of the mother's iodine reserve with an ensuing negative iodine balance.[40b] This loss should be compensated for by a sufficiently large iodine reserve, previously built up, or by an increased iodine intake.[41] As iodine is administered to the mother, a greater proportion of this substance will be secreted in the milk.[42]

### IODINE AND THE PREVENTION OF GOITER

Fortunate was the empiricism which led the ancients to use burnt sponge or seaweed in the treatment of goiter. Iodine was unknown. It was not until 1811 that iodine was accidentally discovered by Courtois as a by-product resulting from the use of seaweed ash in preparing war materials for Napoleon. Within a few years Sir Humphrey Davy had isolated iodine from sponges, seaweed and other forms of marine life. Then followed a fruitful century of clinical investigation, extending from Straub of Berne to Plummer of Rochester, and of fundamental experimental researches, dating from Boussingault of Paris through Chatin, Baumann, Kendall, Marine, von Fellenberg and others to Harington of London.

Today iodine prophylaxis against goiter is widely recognized, while iodized salt is used throughout the entire United States. The extensive and increasing popularity of the use of iodized salt started from the original experiments conducted in Akron, Ohio.

Marine and Kimball's significant studies on the prevention of goiter were made on a large group of school girls.[43] About one half voluntarily received 200 mg. of sodium iodide daily for a period of two weeks each spring and fall. Among almost 4,500 girls who showed no evidence of goiter at the time the experiment was instituted, in 21.5 per cent of those without iodine supplements, and, on the other hand, in only 0.2 per cent of those who received iodine, enlarged thyroid glands developed during the two and one-half years of observation.

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[31] (*a*) Curtis and Fertman,[29b,c] (*b*) Curtis, G. M., and Fertman, M. B.: The Relation of the Basal Metabolic Rate to the Blood Iodine in Thyroid Disease, Ann. Surg. **122:** 963, 1945.

[32] Curtis and Swenson.[26] Curtis and Fertman.[31b]

[33] Curtis, G. M.; Barron, L. E., and Phillips, F. J.: The Blood Iodine After Total Thyroidectomy in Man, J. Lab. & Clin. Med. **20:** 813, 1935.

[34] Curtis, G. M.; Puppel, I. D.; Cole, V. V., and Matthews, N. L.: The Normal Urinary Iodine of Man, J. Lab. & Clin. Med. **22:** 1014, 1937.

[35] (*a*) Curtis, Puppel, Cole and Matthews.[34] (*b*) Curtis, G. M., and Puppel, I. D.: Urinary Iodine in Thyroid Disease, West. J. Surg. **45:** 417, 1937.

[36] Curtis, G. M., and Puppel, I. D.: Increased Urinary Excretion of Iodine in Hyperthyroidism, Arch. Int. Med. **60:** *498* (Sept.) *1937.*

[37] Cole, V. V., and Curtis, G. M.: Cyclic Variations in Urinary Excretion of Iodine in Women, Proc. Soc. Exper. Biol. & Med. **31:** *29,* 1933.

[38] Enright, L.; Cole, V. V., and Hitchcock, F. A.: Basal Metabolism and Iodine Excretion During Pregnancy, Am. J. Physiol. **113:** 221, 1935.

[39] Curtis and Puppel.[35b] James, A. G.: The Postoperative Loss of Iodine in the Urine, Thesis, Columbus, Ohio, Ohio State University, Department of Surgical Research, 1937.

[40] (*a*) Footnote 35. (*b*) Curtis, G. M., and Puppel, I. D.: The Iodine Metabolism in Thyroid Disease, Tr. Third Internat. Goiter Conference, Washington, D. C., 1938, p. 367; The Iodine Metabolism in Exophthalmic Goiter, Ann. Surg. **108:** 574, 1938.

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[42] (*a*) Meyer.[8b] (*b*) Matthews, N. L.; Curtis, G. M., and Meyer, J. H.: The Effect of Increased Iodine Feeding on the Iodine Content of Cow's Milk, J. Dairy Research **10:** 395, 1939. (*c*) von Fellenberg, T.: Das Vorkommen, der Kreislauf und der Stoffwechsel des Jods, Ergebn. d. Physiol. **25:** 176, 1926.

[43] Marine, D., and Kimball, O. P.: Prevention of Goiter in Man, J. A. M. A. **77:** *1068* (Oct. 1) *1921.*

More than 2,000 of the Akron school girls showed an initial thyroid enlargement. In as many as 65.4 per cent of those receiving iodine, there occurred a reduction in the size of the thyroid gland at the end of one year. Only 13.8 per cent of the untreated girls showed any diminution in the size of their goiters. This same study revealed that goiter is most likely to develop during fetal life, during puberty and during pregnancy.[43]

The character and results of the Ohio demonstration stimulated similar efforts throughout the world, particularly in Switzerland, Austria and Germany. Iodine prophylaxis in Switzerland brought the steady decline of cretinism, so important an economic factor to the Swiss. Until 1922 every other newborn infant in the Canton of Appenzell began life with an enlarged thyroid gland. With the institution of iodized salt, this morbidity among newborn infants became nearly legend. Moreover, as a result of the efforts of the Swiss Goiter Commission, the use of iodized salt in the Canton of Vaud reduced the community's total goiter incidence from 77 to 21 per cent in fifteen years.[44]

The results of the incorporation of iodine in the salt consumed in the state of Michigan were likewise convincing. In 1924 common salt iodized to contain 0.02 per cent of sodium iodide was introduced by the Iodized Salt Committee of the Michigan State Medical Society in cooperation with the State Board of Health. From that year on to 1935 there ensued a 75 to 90 per cent decline in the incidence of goiter in those counties using the iodized salt.[4b] The number of goiter operations in seven large hospitals in Southern Michigan dropped from 1,452 in 1927 to 591 in 1933.[45] There was a 60 per cent decrease in the number of goiter operations performed as compared with the 17 per cent decrease in all operations during the corresponding depression years.

Iodine supplementally administered in the form of iodized salt has repeatedly proved beneficial in the prevention of endemic goiter. Its curative effect, however, depends on the character of the goiter, as well as on the age of the patient at the time iodine therapy is instituted. While iodine administration is of value to patients with colloid goiter,[2a] little beneficial change may be expected in older patients with goiters of long standing in which there are extensive pathologic alterations, such as hemorrhage with resultant cyst formation, calcification, vascular degenerative changes and old nodular formations.[30a,b]

Ordinarily microscopic changes will occur in hyperplastic thyroid glands after the administration of supplemental iodine. Rapid involution of existing hyperplasia may be induced. Moreover, glandular hyperplasia of the residual tissue, even after extirpation of as much as three fourths of the thyroid, can be prevented by the administration of sufficient iodine. It has been observed that a hyperplastic gland cannot revert to the colloid state without the presence of a necessary minimum of iodine.[10]

The efficacy of iodine prophylaxis is greater the earlier it is applied and decreases after puberty.[2a] Consequently it would seem wisest to commence prophylaxis even before the time of conception and to maintain it throughout the pregnancy. It should be continued during childhood and particularly through the menarche. This can be adequately accomplished in iodine-deficient regions where goiter is frequent by the continued use of iodized salt.

Subsequent to the nearly worldwide preventive use of iodine, a general decline in the incidence of goiter occurred, particularly in Switzerland, in Austria, Germany, Northern Italy, the United States, England, New Zealand, in Poland, Rumania and Latvia.[15] A turnabout in the incidence of goiter in those countries ravaged by war may be anticipated, along with other nutritional deficiency diseases now rampant in Europe and in Asia. As iodine deficiency develops, the incidence of endemic goiter will increase.

Despite almost worldwide favorable results with iodine prophylaxis, thus again substantiating the basic theory on which it rests, objections have been repeatedly raised, in the earlier years abroad and more recently in the United States, to the preventive use of supplemental iodine. Principal among these objections has been the conjectured harm which iodine might inflict on persons with overactive thyroid glands. Moreover, there has been concern that a simple nodular enlargement of the thyroid might thus be stimulated so that a "toxic" or hyperfunctioning type of condition developed.

The basis of this fear of "jodbasedow," or iodine-induced hyperthyroidism, arose as early as 1820, when Coindet treated his patients with excessive amounts of iodine.[46] This fear has continued through the years, almost paralleling the subsequent progress and repeated successes of iodine prophylaxis. It has been a natural reaction to the dangers inherent in pioneering a drug the action of which was not fully understood. More recent exponents of the theory behind "jodbasedow" were Theodore Kocher and his successor Fritz de Quervain. In 1904 Kocher reported that hyperthyroidism may develop in patients with nodular forms of goiter treated with iodine. In 1910 he wrote of the untoward effects of iodine in toxic diffuse goiter.[47] In 1933 de Quervain listed 33 cases of "jodbasedow" observed during a period of nine years.[48]

Convincing proof is lacking that iodine-induced hyperthyroidism ordinarily or even commonly results from the administration of increased amounts of iodine to goitrous patients. On the other hand, evidence is extensive that supplemental iodine is almost universally beneficial in the prevention of endemic goiter. Kimball observed that only 4 per cent of patients with "adenomas" had hyperthyroidism after the use of iodized salt, whereas 56 per cent of those with goitrous "adenomas" who used no iodized salt or any other form of iodine medication later manifested evidence of increased thyroid activity.[49]

In current medical practice there is ordinarily little hesitancy in prescribing relatively large amounts of iodide on specific indications: syphilis, hypertension or bronchiectasis, for example, without any special regard to the thyroid and its activity. Demonstrably harmful effects as a result of increased thyroid function are not

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44. Eggenberger, H.: Kropf und Kretinismus, in Hirsch, M.: Handbuch der inneren Sekretion, Leipzig, Curt Kabitzsch, 1927, vol. 3, pp. 3 and 4.

45. McClure, R. D.: Thyroid Surgery in Southern Michigan as Affected by the Generalized Use of Iodized Salt, J. Michigan M. Soc. **33:** 58, 1934; The Incidence of Operations for Goiter in Southern Michigan: Effect of Iodized Salt After Twelve Years' General Use, J. A. M. A. **109:** 782 (Sept. 4) 1937.

46. Coindet, J. R.: Decouverte d'un nouveau remede contre le goitre, Ann. de chim. et phys. **15:** 49, 1820.

47. Kocher, T.: Die Therapie des Kropfes, Deutsche Klin. **8:** 1115, 1904; Ueber Jodbasedow, Arch. f. klin. Chir. **96:** 403, 1910.

48. de Quervain, F.: Report of the Second International Goiter Conference, Berne, 1933, pp. 10-12.

49. Kimball, O. P.: The Efficiency and Safety of the Prevention of Goiter, J. A. M. A. **91:** 454 (Aug. 18) 1928; The Prevention of Goiter in Michigan and Ohio, ibid. **108:** 860 (March 13) 1937.

expected and are rarely encountered. At most there ensues, from the administration of iodides, and then only on occasion, the symptoms of iodism, ranging from mild coryza or moderate acne to severe dermatitis accompanied even with a high temperature.[30c]

No ill results should be anticipated from the widespread use of iodides in the minute concentration in which they occur in iodized salts; there have been no reports of iodism induced by the consumption of diets rich in iodine-containing foods in the annals of medicine.[50]

### IODINE IN THE GENERAL HEALTH OF HUMAN BEINGS AND DOMESTIC ANIMALS

Iodine, forming 65 per cent of the thyroid hormone, is a nutritional necessity for the general health of human beings and domestic animals. General health problems ensuing from iodine deficiency are in great part the result of the importance of iodine in maintaining normal thyroid function.

Sufficient iodine is requisite for normal growth. It is well known that thyroid substance plays this role. As early as 1895 it was demonstrated that growth may be induced even in certain cretins by the administration of dried thyroid. Similar results have since been obtained in children of iodine-deficient areas, who have failed to grow normally because of lesser degrees of hypothyroidism.[51] Topper and Cohen recorded that the administration of thyroid to normal children, as well as to children presenting evidence of hypothyroidism, resulted in definite growth acceleration in both groups.[52]

The role of iodine in growth has also been demonstrated. Thus, Swiss statistics show that boys receiving supplemental iodine grew in a year on the average 7 mm. more than untreated boys and put on 200 Gm. more of weight. The mean weight at birth of infants whose mothers were receiving iodized salt was 100 Gm. greater than that of control infants.[2a] Hunziker observed that the average height of Swiss recruits was significantly greater from 1908 to 1912 than during the period from 1884 to 1891. He concluded that supplemental iodine was partly responsible for this increase in stature. Moreover, he found the average height of recruits from sections with a low incidence of goiter exceeded that of recruits from the more goitrogenous areas.[53]

Feeding milk with an increased iodine content to children living in a region of high goiter incidence resulted in more rapid and regular growth and development. Children with debility or those who revealed slow development, failure to gain weight or retarded growth showed subsequent steady improvement.[54] Administration of optimal amounts of iodine to nursing animals accelerated the rate of growth and weight of their young.[55] Direct iodine administration to the young was likewise beneficial.[56]

The favorable effect of iodine on the growth of vertebrates may be direct or indirect. It appears more likely that iodine acts indirectly by supplying the necessary constituent for normal thyroid secretion, thus permitting the gland to exert its usual function.

Besides its importance in growth, iodine also plays a role in human and animal fertility[57] and even in lactation.[58] A preliminary report on the effect of iodine on failing lactation indicates that this condition is due not to a defective thyroid gland but to a deficient intake of iodine. As in similar experiments with animals,[57] all mothers responded with increased output of breast milk.[58b]

Breeding difficulties among animals long existed in varying degrees throughout the goiter areas of the United States, until the prophylactic use of iodine became widespread as a means of combating this problem.[59]

As early as 1907 iodine-containing salts were fed to Michigan sheep in order to prevent the high mortality rate ordinarily occurring among newborn lambs.[59d] In 1916 Montana, faced with a high mortality rate among its live stock, as well as with the development of goiter and underfunctioning thyroids, instituted similar treatment with success.[59e] Since the introduction of iodized salt at the University of Wisconsin farms in 1920, there has not been an instance of goiter among the domestic animals, including sheep, swine, colts and calves.[4a]

Iodine prophylaxis of iodine deficiency disease among domestic animals, or "fetal athyrosis," as it was then designated, has spread to other states and provinces. Minnesota, North and South Dakota, Wyoming, Washington, Idaho, Southern Alberta and British Columbia have similarly used iodine preventively.

### THE HUMAN REQUIREMENT OF IODINE

The supply of iodine necessary to answer the needs of the human body should be sufficient to meet the daily losses by excretion and to maintain within the body such reserves as may be needed in the manufacture and distribution of adequate thyroid hormone. The amount of iodine intake, however, is not always equal to the physiologic needs. This is in contrast with the organism's chlorine requirement, which is more easily met because of the association of this element with the sensation of taste.

The fundamental question thus arises: How much supplemental iodine is necessary in those areas in which goiter is prevalent in order to protect the populace from the effects of iodine deficiency? Thus far, three methods have been developed in attempts to answer this question.

By the geographic method the iodine intake of the inhabitants of goiter-free areas is determined and compared with that of areas of varying degrees of goiter incidence. The difference in the amount of average iodine intake is then regarded as the amount of supplemental iodine required. According to von Fellenberg's estimate the annual iodine intake in one goitrous and one practically goiter-free area in Switzerland was

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[50] Weston, W.: Iodine in Nutrition, Am. J. Pub. Health **21:** 715, 1931.

[51] Moore, M. C., and Moseley, H. W.: Iodine and Its Relation to Health, New Orleans M. & S. J. **86:** 449, 1934.

[52] Topper, A., and Cohen, P.: Effect of Thyroid Therapy on Children, Am. J. Dis. Child. **35:** 205, 1928.

[53] Hunziker, H.: Kropf und Langenwachstum, Schweiz. med. Wchnschr. **50:** 209, 1920.

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[56] Hanzlik, P. J.; Talbot, E. P., and Gibson, E. E.: Continued Administration of Iodine and Other Salts: Comparative Effects on Weight and Growth of Body, Arch. Int. Med. **42:** 579 (Oct.) 1928.

[57] Phillips, F. J.; Erf. O., and Curtis, G. M.: The Effects of Prolonged Increased Iodine Feeding, Ohio J. Sc. **35:** 286, 1935.

[58] (*a*) Phillips, Erf and Curtis.[57] (*b*) Robinson, M.: Hormones and Lactation: Dried Thyroid Gland, Lancet **2:** 385, 1947.

[59] (*a*) Smith, G. E.: Iodine Requirement in the Pregnant Sow (Fetal Athyrosis), J. Biol. Chem. **29:** 215, 1917. (*b*) Hart, E. B., and Steenbock, H.: Thyroid Hyperplasia *and the Relation of Iodine to the* Hairless Pig Malady, ibid. **33:** 313, 1918. (*c*) Kalkus, J. W.: A Study of Goiter and Associated Conditions in Domestic Animals, Bulletin 156, Washington State Experiment Station, July 1920. (*d*) Marine, D.: On the Occurrence and Physiological Nature of Glandular Hyperplasia of the Thyroid (Dog and Sheep) Together with Remarks on Important Clinical (Human) Problems, Bull. Johns Hopkins Hosp. **18:** 359, 1907. (*e*) Welch, H.: Hairlessness and Goiter in Newborn Domestic Animals, Bulletin 119, Montana Experiment Station, September 1917.

4.7 and 11.4 mg., respectively. Calculating from this, the iodine requirement would be less than 20 micrograms daily, a figure now regarded as extraordinarily low.[42c] Calculated on determinations of the average daily urinary loss of iodine (figs. 1 and 2) which is an unusually accurate barometer of the iodine intake of a given area, the daily iodine requirement would lie somewhere between 100 and 200 micrograms.[34]

The principle of thyroxine formation and decay was originally outlined by Plummer and Boothby [60] and subsequently developed by Thompson.[61] Plummer and Boothby observed that the daily rate of thyroxine decay ranged between 200 and 400 micrograms. Thus, a daily supply of thyroxine in this quantity maintained a normal basal metabolic rate in a totally myxedematous patient. Thompson and his group concluded that from 300 to 400 micrograms of thyroxine was necessary to maintain a normal basal metabolic rate in myxedematous patients at bed rest. On the basis of these results the amount of thyroxine supplied daily to the circulation by the thyroid gland, in order to maintain normal metabolic activity, is equivalent to from 130 to 260 micrograms of iodine. The uncertain factor here, however, is that iodine-containing end products of thyroxine decay may be retained and eventually reutilized by the thyroid gland in the further synthesis of thyroid hormone.

Studies of total iodine balance constitute the third principle which has been employed (figs. 1, 2 and 3). The iodine balance represents the daily amount of iodine lost or retained by the body, as ascertained by the difference between the amount of iodine intake and excretion. Pioneer determinations of iodine balance were accomplished by von Fellenberg, who reported low values and consequently a low daily requirement.[42c] The balance studies of Scheffer made in Pecs, Hungary, revealed that 54 micrograms of daily iodine intake was sufficient to maintain the iodine balance in a normal person.[62]

Ohio State University studies were made on normal persons maintained at bed rest on a monotonous diet low in iodine content, under controlled hospital conditions (figs. 1, 2 and 3). In these circumstances the basal human adult iodine requirement was found to range from 44 to 75 micrograms daily and to average 67 micrograms, or approximately 1 microgram per kilogram of body weight.[63] This average daily requirement is comparable to that determined by Scheffer. However, it should be emphasized that it applies to adults maintained under controlled basal conditions. Moreover, to arrive at an optimal iodine requirement, it is necessary to take into account individual activity as well as the varied stress and strain of existence.

After consideration of the difference in iodine intake between goitrogenous and nongoitrogenous regions and the amount of iodine estimated as necessary to maintain normal metabolic activity, 2 micrograms daily per kilogram .of body weight, together with the daily basal requirement of 1 microgram, can be reasonably justified as an amount sufficient to account for basal needs, those of ordinary activities and also some for reserve. The optimal daily requirement would thus be somewhere near 200 micrograms for an adult of 70 Kg., a value compatible with Elmer's deduction from various investigations that the human optimal requirement ranges between 100 and 200 micrograms daily.[15] The pregnant woman should receive additional iodine.[41a] A sufficient amount will be supplied by the use of iodized salt.[39]

Various methods of supplying supplemental iodine to the inhabitants of iodine-deficient areas have been advanced. These include the use of foods known to be rich in iodine, iodinization of water supplies, administration of iodine at regular intervals in the form of solutions or tablets, the general use of iodized salt and the consumption of iodized milk.

The use of iodized salt has thus far proved the most widely adopted method. The nearly universal employment of common salt for seasoning and cooking, as well as the ready preparation and low cost of iodized salt, makes this the popular method. The use of milk with an increased iodine content has also been suggested as suitable (fig. 1),[8b] especially for children who ordinarily consume large quantities. Effective iodine prophylaxis should conform to local conditions, since no single method will reach all those persons who need iodine.

The iodized salt originally recommended in 1924 by the Michigan State Medical Society in conjunction with the State Board of Health, and subsequently employed in Michigan with such outstanding results, originally contained 0.02 per cent of sodium iodide. However, after careful consideration, the Goiter Study Committee of the American Public Health Association reached the conclusion that the addition of 0.01 per cent of potassium iodide plus a stabilizer should be sufficient.[4] The importance of a stabilizer was emphasized in view of previous experience that iodine may be lost from iodized salt and thus impart a yellowness and a halogen odor on liberation of elemental iodine.

It has been estimated that the average adult ingests about 6.2 Gm. of salt daily. Calculated on this basis, the approximate amount of potassium iodide intake would be 620 micrograms, which is equivalent to about 474 micrograms of iodine. This is more than twice the amount we have suggested as optimal and would amply provide a person with a sufficient reserve.

## SUMMARY AND CONCLUSION

The universal prevention of endemic goiter and its sequelae will depend not only on the preparation and consumption of adequately iodized salt but also on the persistent education of all peoples to the necessity of its continued use. This is slowly but surely being accomplished. We may even look forward with sound hope to the eventual control of endemic goiter.

It cannot be too frequently repeated that iodine plays an indispensable role in the human organism and an indisputable role in medicine. Its prophylactic usage to insure the well-being of man and his essential domestic animals deserves continued emphasis. Thus, the element iodine is to the normal functioning thyroid gland as water to cultivated ground. Deprivation of this necessary substance, even to a slight degree, produces changes in the entire organism, harmful to the individual and significant to a people. A sufficient amount of iodine intake is a biologic necessity.

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THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JANUARY 1, 1949

## THE MEDICAL SUPPORT FOR COMPULSORY SICKNESS INSURANCE.

In the editorial published in The Journal last week on the assessment and public opinion, attention was called to the fact that the medical profession as a whole gives but little support to Mr. Oscar R. Ewing's propaganda in behalf of compulsory sickness insurance. The same pressure groups that have been apparent in the past are again visible on the public horizon. Chief among them, because of its financial support, is the so-called Committee for the Nation's Health, Inc., headed by Dr. Channing Frothingham, motivated and controlled by Mr. Michael M. Davis, Ph.D., who likes to be called "doctor," and largely supported through Mr. and Mrs. A. D. Lasker and some of their friends. When the House of Delegates of the American Medical Association unanimously voted the $25 assessment to promote voluntary health insurance and to educate the American people regarding the ideals of American medicine and the dangers of a *politically controlled* compulsory sickness insurance system, Dr. Channing Frothingham of Boston voluntarily gave an interview to the press alleging that the doctors of the grass roots would never support the action of the House of Delegates. Enough response has already occurred to indicate that Dr. Channing Frothingham was without any exact knowledge on which to base that statement. Indeed, he is so far removed from the activities of the American Medical Association that his judgment could have but little basis. Dr. Frothingham must be pardoned, however, since he has apparently some difficulty in learning facts of even greater importance. Here is the testimony which he gave in hearings before the Senate Committee on Education and Labor:

> Senator Donnell: Doctor, this is not any aspersion on you, but I want to get at just who those that really organized this Committee for the Nation's Health are.
>
> Who did that?
>
> Dr. Frothingham: I do not know. That is a tough one.
>
> Senator Donnell: Who was the first man you ever heard about it from? That is fine grammar I used here. But, from *whom did you first hear about the organization of this* committee?
>
> Dr. Frothingham: Darned if I know. I would have to look that up in my files.
>
> Senator Donnell: Was it not Dr. Michael M. Davis?
>
> Dr. Frothingham: It might well have been. I can imagine of no better organizer.
>
> Senator Donnell: I expect you are right. He is a pretty good organizer.
>
> The Chairman [Senator James E. Murray]: Doctor, I might ask you a few questions there.
>
> *Is it not a fact that you and other physicians like you* have been interested in improving medical care in this country and have been coming to Washington here and attending previous hearings that we have had on this problem, and have been contacting and talking to people like myself, who have been interested in this problem for some time?
>
> I have known you myself personally for several years, prior to the organization of this committee, and I have known of your interest in this problem.
>
> Dr. Frothingham: Yes.
>
> The Chairman: You have discussed it with me many times, and I have seen you at meetings where the matter is *being discussed. The organization of this committee is an* evolution.
>
> Dr. Frothingham: That is right.
>
> The Chairman: Which has been taking place in this country for a period of years.
>
> Dr. Frothingham: That is perfectly true. It must be at least three years that we have been mulling over this subject.
>
> The Chairman: Yes.
>
> Senator Donnell: And Doctor, your mulling culminated on the 23d of Februrary of this year in the incorporation of this committee, is that right?
>
> Dr. Frothingham: The mulling brought out this particular group in favor of it. There are other groups working on it.
>
> Senator Donnell: Is Dr. John P. Peters also in this Committee for the Nation's Health?
>
> Dr. Frothingham: *I have got to look at that, too.*
>
> Yes; he is only a couple of lines lower down than Butler.
>
> Senator Donnell: Doctor, I will not ask you in detail on this, but without reference to your leaflet or your files, do you know anybody that is on this committee except yourself and Mr. Michael Davis?
>
> Dr. Frothingham: Yes.
>
> Senator Donnell: Who?
>
> Dr. Frothingham: Well, now, let me think.
>
> I went to a meeting, or a couple of meetings in New York. There was a man by the name of Rothchild and a lady by the name of—she had a wonderful suite of rooms. I cannot remember what her name was.
>
> The Chairman: Where did this meeting take place, Doctor?
>
> Dr. Frothingham: Once in a house and once in the suite of rooms. We went to two meetings. I really cannot remember her name.
>
> The Chairman: You may use the pamphlet and refresh your memory if you desire. That is a practice in the legal profession.

Senator Donnell: That is all right. I would really like for him to tell us if he has any memory about anybody there except Mr. Rothchild and this lady.

Dr. Frothingham: Yes. Dr. Davis, the nonmedical Dr. Davis.

Senator Donnell: Dr. Michael Davis, also?

Dr. Frothingham: Dr Michael M. Davis.

Senator Donnell: This is an organization meeting?

Dr. Frothingham: No; this is the executive committee, this is after the movement was over and the child was born.

Senator Donnell: All right.

Dr. Frothingham: I cannot remember her name to save my soul. It is lucky I am getting too old to practice, is it not?

And then a lady by the name of Norman. She was not the one that owned the villa.

Senator Donnell: You cannot remember the name of the lady who had the villa?

Dr. Frothingham: I will tell you, Dr. Davis can tell you that.

Senator Donnell: Dr. Michael Davis?

Dr. Frothingham: He is my memory man.

Senator Donnell: All right.

Additional support for compulsory sickness insurance comes from a committee known as the Committee of Physicians, which began a good many years ago with some four hundred names and which now has apparently dwindled to thirty-five. Several of the thirty-five are also officers of the Committee for the Nation's Health, Inc.; a few are names notable in medicine for contributions to medical advancement. A good many are full time salaried teachers. Under the leadership of Dr. John Peters of Yale University School of Medicine, who seems to represent 95 per cent of the working force of this group, they discuss with a vast amount of wordage and with a great deal of seesaw motion every step in the consideration of the problem. Apparently they have a mailing list of some thousands of names, but the source of their financial support is not apparent.

Third in the opposition is the Physicians Forum headed by Dr. Ernst Boas of New York. This agency may muster as many as 3,000 members, almost wholly concentrated in Philadelphia, New York and Washington. Recently the president of the New York County Medical Society, Dr. William B. Rawls, accused Dr. Boas of membership in a great many leftist organizations. An attempt is now being made to cause Dr. Rawls to retract his statement, and the matter is before the comitia minora of the New York County Medical Society.

This apparently represents the organized medical opposition to the policies of the American Medical Association. Certainly the opposition is pitiful in its proportions compared to the vast support of the American Medical Association's policies given by an exceedingly preponderant majority of the latter's more than 135,000 members.

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## THE WORLD HEALTH ASSEMBLY

The first World Health Assembly met in Geneva from June 24 to July 24, 1948. Already many of its activities have been noted in the news columns of The Journal. The organization is complex, with special committees devoted to a variety of interests. At present the chief concerns are malaria, tuberculosis, venereal disease and maternal and child health. Programs have been established for these four fields which will be begun in 1949 and developed over succeeding years. The Assembly estimates that more than one fifth of all deaths throughout the world from all diseases arise from environmental conditions controllable by sanitary engineering. An expert committee is to be established for this field also. As soon as measures for the improvement of environmental hygiene can be taken by governmental action without recourse to such technics as education, instruction or individual treatment, the World Health Organization looks for prompt results in improving sanitary conditions throughout the world.

Nutrition is the environmental factor which is agreed to have the greatest bearing on health. Obviously, therefore, the World Health Organization will soon have established a special committee on this subject to be concerned particularly with endemic goiter and pellagra.

Geneva is the permanent headquarters of the World Health Organization. Arrangements have been made for suitable relationships with UNESCO, United Nations and similar groups. The budget for 1949 is $5,000,000; of this amount $1,000,000 has been assigned to the six subjects mentioned on the priority list. Another sum of $700,000 has been set aside for fellowships, medical literature and teaching material, and additional appropriations have been made for international epidemiologic studies, editorial and reference services, public health administrations and health statistics.

A World Health Day is to be held in the future each year on July 22, the date on which the constitution of the World Health Organization was signed by sixty-one states. The next Health Assembly is to be held in Europe. The representation from the United States is considerable and includes, among others, Dr. James R. Miller, who is a trustee of the American Medical Association. The active representative is Dr. H. van Zile Hyde.

# Current Comment

## PROPORTION OF PHYSICIANS TO POPULATION

In a broadcast over the Mutual Chain entitled "Meet the Press" early in December, Mr. Oscar R. Ewing, Administrator of the Federal Security Agency, was asked the simple question, "Do you know of any country that has more doctors in proportion to its population than the United States?" To this Mr. Ewing replied, "I don't. . . . I just don't know the answer one way or the other. Whether there are or aren't. I can't tell you." For the information of Mr. Ewing and of others who may have doubts that the United States has more doctors in proportion to population than any other country in the world, The Journal presents a recent table based on a survey conducted in 1948 by the World Medical Association. In this table the number of doctors per 100,000 population is listed, and in the right hand column the number of people per doctor. It should be obvious that except for Palestine (Jewish), where there are great numbers of refugee physicians from Central Europe, the United States is well ahead of the rest of the world in proportion of physicians to population.

*Total Population, Physicians and Physicians per 100,000 Population and Population per Physician in a Representative Group of Countries**

| Country | Population | Doctors | Doctors per 100,000 Population | Population per Doctor |
|---|---|---|---|---|
| United States | 141,228,673 | 197,605 | 140 | 710 |
| Great Britain | 48,788,000 | 55,771 | 114 | 870 |
| Iceland | 132,000 | 149 | 113 | 890 |
| Denmark | 4,014,725 | 4,250 | 105 | 950 |
| Canada | 11,489,713 | 11,901 | 104 | 970 |
| New Zealand | 1,750,000 | 1,800 | 103 | 970 |
| Australia | 7,500,000 | 7,137 | 95 | 1,100 |
| Switzerland | 4,000,000 | 3,806 | 95 | 1,100 |
| Sweden | 6,700,000 | 6,360 | 95 | 1,100 |
| Spain | 27,000,000 | 25,142 | 93 | 1,100 |
| Norway | 3,126,000 | 2,900 | 93 | 1,100 |
| Netherlands | 9,000,000 | 8,000 | 89 | 1,100 |
| Luxemburg | 281,572 | 234 | 83 | 1,200 |
| Czechoslovakia | 12,000,000 | 9,300 | 78 | 1,300 |
| France | 40,000,000 | 30,000 | 75 | 1,300 |
| Eire | 3,000,000 | 2,000 | 67 | 1,500 |
| Bulgaria | 7,022,206 | 4,563 | 65 | 1,500 |
| Finland | 3,865,000 | 1,737 | 45 | 2,200 |
| Union South Africa | 11,391,949 | 4,800 | 42 | 2,400 |
| Egypt | 17,000,000 | 4,000 | 24 | 4,200 |
| Palestine (Arab) | 1,300,000 | 291 | 22 | 4,500 |
| China | 450,000,000 | 20,000 | 4 | 25,000 |
| Palestine (Jewish)† | 625,000 | 2,386 | 382 | 260 |

* Source: Draft Report on the Medical Professions in 23 Countries, New York, World Medical Association, 1948, table 1. The only other current figure available is 16,930 physicians in Brazil in 1946, which has a population of about 45,000,000, giving 36 physicians per 100,000 population (J. A. M. A. **138**: 527 [Oct. 16] 1948). This is greatly out of line with the estimate for 1933, which placed Brazil's ratio as equal to Sweden's.

† "The high rate of 3,818 [per million] for the Jewish section of Palestine is probably attributable to special temporary circumstances."

## THE AGES OF PHYSICIANS IN 1940 AND IN 1948

Elsewhere in this issue is a tabulation prepared by the Bureau of Medical Economic Research of the American Medical Association of the ages of all physicians in the United States, including those who are not in active practice. Contrary to the claims made by some advocates of compulsory sickness insurance, the average age of physicians has declined slightly since 1940. The percentage who are under 50 years of age has increased from 57.5 in 1940 to 60.2 in 1948. The percentage at age 70 and over has also increased. The decline in the median age from 45.8 years to 44.4 reflects the results of the speed-up program of medical education during World War II. This article is the second in a series. The first article appeared in The Journal of Aug. 21, 1948 and revealed that the number of physicians has increased 14 per cent since 1940, while the total United States population has increased only 12 per cent. Subsequent tabulations will be reported in The Journal by the Bureau of Medical Economic Research from time to time as its new punch card system nears completion.

## INSTITUTE OF INTER-AMERICAN AFFAIRS

Recent reports of the Institute of Inter-American Affairs indicate that a realistic inventory and appraisal of programs which the Institute has been conducting in the countries of the Western Hemisphere since 1941 is now under way. The primary purpose of reappraisal at this time is the establishment of definite recommendations toward provisions for the future of the entire program. Since 1941, first under the auspices of the Coordinator of Inter-American Affairs and subsequently under the direct control of the State Department, the Institute has been engaged in three-pronged actively cooperative programs in health, education and agriculture with some twenty of the Western Hemisphere republics. The Institute program has received less than deserved publicity and recognition in the United States, primarily because of overshadowing news events connected with the war and with subsequent postwar activities in the European and Asiatic areas. However, the work of the Division of Health and Sanitation of the Institute alone has been the greatest operating international public health effort both in scope and area covered ever undertaken by a single public health agency. The health projects, although they vary to some extent in all countries, are directed toward public health education, improvement of basic sanitary facilities, hospital construction and operation, special disease campaigns and training of personnel. The selective approach of the Institute to problems of agriculture, health and education is based principally on the belief that hunger, disease and ignorance are the outstanding allies of totalitarianism in the present world situation. The program of the Institute represents the spirit of good neighborliness characteristic of international relations among the countries of the Western Hemisphere for many years past. Such a program of proved effectiveness in friendly countries of the Western Hemisphere deserves continued national support.

# ORGANIZATION SECTION

## Washington Letter

*(From a Special Correspondent)*

Dec. 27, 1948.

### Radical Changes Advocated by Hoover Commission Unit

The Commission on Organization of the Executive Branch of the Government—better known as the Hoover Commission—will make several controversial recommendations to Congress in January if it indorses the views of its "task force" committee that studied the National Military Establishment. These recommendations affect not only the Army, Navy and Air Force medical departments but bear directly on Veterans Administration and U. S. Public Health Service as well. In addition, their adoption would exercise marked influence on nongovernmental medical care and hospitalization, with particular reference to those proposals for a system of "federal health insurance," amendment of the Selective Service Act to legalize drafting of A. S. T. P. and V-12 graduates who saw little or no active service in the military medical corps and unification of federal hospitalization.

Following are some of the recommendations of the Eberstadt committee, which surveyed the National Security Organization for the Hoover Commission, together with observations culled from its detailed report:

Establish a single federal hospital system, which would administer all government hospitals—Army, Navy and Veterans Administration included—located within the continental limits.

"The proposed Federal hospital system could well develop one of the strongest graduate training programs in American medicine, with the highest professional standards of medical service. At the same time it could guarantee a reservoir of skilled personnel who would be attracted to government service through appreciation of the rewards in such a service and the possibilities of a distinguished career in medicine."

Study the feasibility of reducing the patient load of military hospitals by curtailment of services to dependents, the point being noted that 42 per cent of all beds in naval hospitals are occupied by nonservice patients.

"Withdrawal of these privileges within the services might raise serious morale problems. The logical solution to this problem may be the same as in civilian life and industry, namely, provision of hospital and medical insurance to cover the needs of such dependents. It would, obviously, be necessary to increase monetary allowances to provide for such an insurance plan, but such provision would probably be more economical in the long run. Such insurance coverage could be used either in Federal or civilian institutions. Medical service for dependents in outlying posts or overseas stations would, of course, continue."

Let the armed forces strive for greater conservation of their medical man power and enhancement of its efficiency.

"In the committee's opinion, service estimates of their medical and dental needs are excessive and are much higher in proportion to numbers of personnel than in civilian life. The utilization of doctors in administrative rather than in medical positions, maldistribution of medical personnel, wasteful medical practices and the diversion of service medical efforts to care for a great patient load of service dependents, veterans and various Federal employees contributes to the apparent service shortage. There is, however, a great national shortage of doctors—particularly of specialists—and even the correction of service medical deficiencies will not solve this problem."

The Eberstadt committee urges establishment of a separate medical department to serve the U. S. Air Force, criticizes the recent Army order (Circular No. 342, Nov. 1, 1948) which subordinates the Surgeon General to the Director of Logistics, suggests that the medical division of National Security Resources Board coordinate the allocation of affiliated reserve medical units for duty in event of emergency and praises the record of the Office of Naval Research for its work in initiating and supervising medical and other types of scientific studies.

"It should be emphasized," says the report, "that the proposal for the establishment of a federal hospital system does not involve 'socialized medicine'; such a consideration is entirely beyond the committee's purview."

Through the services of Drs. Howard A. Rusk and Richard D. Meiling, the Eberstadt committee had close liaison with the Voorhees committee, another Hoover Commission "task force" whose job consisted of surveying the federal government's activities in the health, medical and hospital fields as a whole. Findings of the latter group were scheduled to be made public in late December. The Eberstadt report indicated that both committees had found agreement on establishment of a unified federal hospital system and the wisdom of studying institution of "a system of federal health insurance for service personnel and dependents."

### Forrestal's Medical Advisors to Meet in January

Although a definite date for the new group's first meeting had not yet been fixed a week before Christmas, indications were that the Armed Forces Medical Advisory Committee would be assembled in mid-January. Appointment of such a group was one of the recommendations of the Eberstadt committee. It proposed, however, that the chairman be a physician. Secretary of Defense Forrestal's designee is a layman, Charles Proctor Cooper, president of the board of trustees of Presbyterian Hospital (New York) and formerly vice president of American Telephone & Telegraph Company. Three of the advisory committee members—Drs. Michael DeBakey, Paul R. Hawley and Edward D. Churchill—served on the Hoover Commission's "task force" that investigated federal activities in medical care and hospitalization. Another, Dr. Raymond B. Allen, president of the University of Washington, was a member of the Eberstadt committee, while Drs. Rusk and Meiling were liaison officers. The other civilians on the advisory group are Drs. Maurice C. Pincoffs, Paul Titus and Walter H. Scherer, the last named being a former president of the American Dental Association.

### Dr. Topping Promoted to Assistant Surgeon General

Dr. Leonard A. Scheele, Surgeon General of the U. S. Public Health Service, has announced promotion of Dr. Norman H. Topping to Assistant Surgeon General. The rank is equivalent to that of brigadier general. Dr. Topping will continue in his present assignment as associate director of National Institutes of Health, research arm of the Public Health Service. Born in Missouri in 1908, Dr. Topping received his undergraduate and medical education at University of Southern California and was commissioned in the Public Health Service in 1936.

## Coming Medical Meetings

Annual Congress on Industrial Health, Chicago, Drake Hotel, Jan. 18-19. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

Annual Congress on Medical Education and Licensure, Chicago, Palmer House, Feb. 7-8. Dr. Donald G. Anderson, 535 N. Dearborn St., Chicago 10, Secretary.

National Conference on Rural Health, Chicago, Palmer House, Feb. 4-5. Dr. F. S. Crockett, 535 N. Dearborn St., Chicago 10, Chairman.

American Society for Surgery of the Hand, Chicago, Jan. 21-22. Dr. Joseph H. Boyes, 1401 S. Hope St., Los Angeles 15, Secretary.

International Post-Graduate Medical Assembly of Southwest Texas, San Antonio, Jan. 25-27. Dr. John J. Hinchey, P. O. Box 2445, San Antonio, Secretary.

Southeastern Allergy Association, Durham, N. C., Washington-Duke Hotel, Jan. 22-23. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia, S. C., Secretary.

Southeastern Surgical Congress, Biloxi, Miss., Jan. 24-27. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Ga., Secretary.

Western Section American Urological Association, Coronado, Calif., Hotel del Coronado, Jan. 17-19. Dr. Adolph A. Kutzmann, 1930 Wilshire Blvd., Los Angeles 5, Secretary.

# GOVERNMENT SERVICES

## ARMY

### TRAINING COURSES AVAILABLE IN CIVILIAN INSTITUTIONS

Training courses ranging in length from five months to a year to be given in specified civilian institutions during the fiscal year 1950 are now being offered to qualified Regular Army personnel, the Surgeon General has announced, as a development of the Medical Department's Career Guidance Plan evolved two years ago. The subjects include most of the medical and allied science fields at leading universities, colleges, hospitals and foundations. The Surgeon General's Office intends to train personnel whose records and aptitudes show them best qualified to draw the maximum benefits from advanced study. The program, tentatively established in twenty-five civilian institutions, has a twofold aim: to insure advancement in their respective specialties to each of the officers selected and to integrate the best of civilian medicine with military medicine. Information for applicants is set forth in SGO circular 134 dated Nov. 16, 1948. Applications for training are to be forwarded to the Surgeon General's Office prior to Feb. 1, 1949.

### NEW COMMANDANT OF MEDICAL CENTER

The Surgeon General announced December 9 the assignment of Brigadier General Paul H. Streit to command the Army Medical Center in Washington, D. C., succeeding Major General George C. Beach Jr., who died Nov. 18, 1948. General Streit was recently in command of Brooke General Hospital at Fort Sam Houston, Texas. He was graduated by the University of Texas Medical School and interned at John Sealy Hospital in Galveston, Texas, then joined the Regular Army Medical Corps and went overseas with the 87th Division in 1917. He did postgraduate nose and throat work at the University of Bordeaux and in 1919 joined the American Typhus Relief Expedition with headquarters in Warsaw, Poland. Among other assignments, he has been chief of the eye, ear, nose and throat service at Jefferson Barracks, Mo.; at Sternberg General Hospital in Manila; at Fort Leavenworth (Kansas) General Hospital; at the Army-Navy General Hospital, Hot Springs, Ark., and at the Letterman General Hospital, San Francisco. During the recent war he was chief surgeon of the Central Pacific Base Command and commandant of the Dibble General Hospital, the Army's center at Menlo Park, Calif., for treatment of blindness and for plastic surgery.

### MONTHLY MEDICAL MEETING

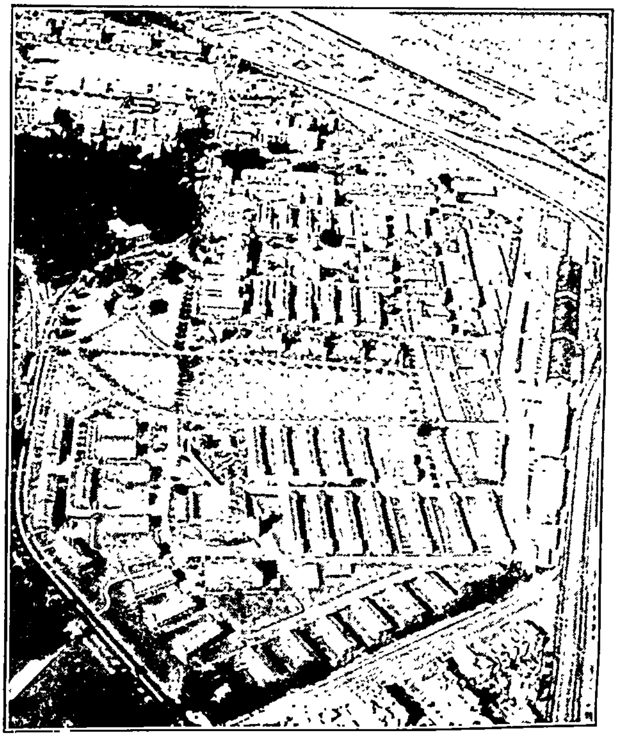
Dr. Owen H. Wangensteen, chief, department of surgery, University of Minnesota, Minneapolis, will address the Surgeon General's monthly medical meeting at Walter Reed Hospital January 24 on "The Etiology and Surgical Management of Peptic Ulcers." Major Edwin J. Pulaski, Surgical Research Laboratory, Brooke Army Medical Center, Fort Sam Houston, Texas, will speak on "The Control of Peritoneal Infection in Gastro-Intestinal Tract Surgery."

### INSTITUTE OF PATHOLOGY

The following doctors were at the Army Institute of Pathology, Washington, D. C., on the dates indicated, to act as consultants to the staff: Dr. Henry M. Goldman, Boston, November 4-5, and Dr. Herman Becks, George Williams Hooper Foundation, University of California, November 10-14.

### LETTERMAN HOSPITAL CELEBRATES FIFTIETH ANNIVERSARY

Letterman General Hospital, Presidio of San Francisco, celebrated its fiftieth anniversary on Nov. 23, 1948. The Surgeon General of the Army made the chief address. Brigadier General Frank L. Cole, hospital commander, directed the anniversary program. This hospital was designated a general hospital by the Secretary of War on Dec. 1, 1898, and thirteen years later was named in honor of Major Jonathan Letterman, a Civil War surgeon who devoted the last eight years of his life following retirement from the Army to community service in the Presidio of San Francisco. Major Letterman was the son of an eminent Pennsylvania physician. He received his M.D. degree from Jefferson Medical College in 1849 and joined the Army as an assistant surgeon in that year. He served in at least three Indian campaigns. On July 4, 1862, he reported for duty as Medical Director of the Army of the Potomac. The outbreak of hostilities between the states found the Surgeon General almost totally unprepared. When Letterman took over as medical director, he found neither plans, personnel nor equipment for collecting the wounded from the battlefields, for transporting them to the rear or for caring for them in hospitals. Letterman immediately set up an efficient evacuation operation, organized an ambulance corps, devised an effective supply plan and inaugurated a field hospital system which was the forerunner of the current station hospital. These were all innovations. While similar proposals had been made before at various times, all were either ignored or discarded. Letterman's entire program, which received its first trial at Fredericksburg in 1862, was later enacted into law with a few minor changes. Thus was established the basic model of the current field organization of the Army Medical Department.



Latest Air View of Letterman General Hospital.

# NAVY

## SPECIAL WEAPONS PROJECT

Regular and Reserve officers of the Navy are invited to attend an indoctrination course on the medical aspects of atomic explosion at the Sternberg Auditorium, Army Medical Center, Washington, D. C., Jan. 24 to Feb. 1, 1949. Any regular or reserve officer desiring to attend this course should apply by air mail letter to the Bureau of Medicine and Surgery not later than January 10. Accepted candidates will be requested to attend this course at their own expense under TAD authorization orders with government air transportation if available.

## FIRST ACTIVE DUTY

The following lieutenants (jg) in the medical reserve corps have received orders to their first active duty as interns at the Naval hospitals indicated: Konstantin H. Geocaris of Chicago, to Oakland, Calif.; James A. Hardie of Columbus, Ohio, to Oakland, Calif.; Harold P. Hargreaves of Salt Lake City, to St. Albans, L. I., N. Y.; Raymond J. Krause of Columbus, Ohio, to San Diego, Calif., and William C. Love of Columbus, Ohio, to Long Beach, Calif.

## POSTGRADUATE INSTRUCTION

The following medical officers have been nominated to the courses in postgraduate instruction indicated: Comdr. John C. Dunn, Brooklyn, to a fellowship in children's orthopedics at the James W. Riley Memorial Hospital, Indianapolis; Lieut. George C. Beattie, Bowling Green, Ohio, to a fellowship in children's orthopedics at the Children's Hospital, Boston, and Lieut. (jg) Lyle H. Prenzler, Bloomington, Ill., to a residency in psychiatry at St. Elizabeth's Hospital, Washington, D. C.

## INSTRUCTION IN CIVILIAN INSTITUTIONS

The following reserve medical officers have been ordered to their first active duty and will receive postgraduate instruction under the Navy's Medical Training Program in civilian institutions: Lieutenants (jg) Robert P. Dobbie Jr., Buffalo, N. Y., to a residency in general surgery at University Hospital, Ann Arbor, Mich.; Paul D. Doolan, Hamden, Conn., to a residency in internal medicine at Boston City Hospital, Boston; James L. Keating, Falls Church, Va., to a residency in general surgery at Georgetown University Hospital, Washington, D. C., and John W. Troy, Washington, D. C., to a residency in general surgery at Georgetown University Hospital, Washington, D. C.

## PERSONALS

Comdr. T. A. Harris, M.C., chief of the Division of Psychiatry of the Bureau of Medicine and Surgery, has been appointed a member of the American Board of Psychiatry and Neurology.

Lieut. (jg) Frank D. Fuller has transferred from active reserve status to the Regular Navy Medical Corps.

Lieutenants (jg) William C. Curtis of Milwaukee and Navon M. Olson of Lake Mills, Iowa, reserve medical officers, have been ordered to their first active duty.

## GUEST LECTURER AT MEDICAL CENTER

Dr. Arthur W. Allen of Boston addressed the meeting of the Naval medical officers at Bethesda, Md., Dec. 17, 1948, on "Gastric and Duodenal Ulcers." This was the fourth lecture of the monthly series by guest speakers sponsored by the Medical Center.

# VETERANS ADMINISTRATION

## NEW METHOD OF STAFFING A HOSPITAL

The Veterans Administration announces that a new method of staffing will be in effect when the Veterans Administration hospital at Grand Junction, Colo., opens in January 1949. The new 150 bed general medical and surgical hospital, located about half way between Salt Lake City and Denver, will not have any residents. Instead, it will be staffed with men who have completed their formal residency training and are prepared to put in two years of practice in their specialty under supervision of certified specialists. This training is necessary as part of the requisite for becoming certified specialists. The Veterans Administration said that the program—under the supervision of Dr. Richard Young and Dr. Ward Darley, deans of the medical schools of Utah and Colorado universities, respectively—will result in a continually rotated staff of high caliber.

## INTENSIVE TREATMENT OF MENTAL PATIENTS

During the last year an intensive treatment program, officially identified as the Reintegrative Research Program, has been in effect at the Veterans Hospital at Northport, Long Island, in an attempt to rehabilitate patients with the more serious types of mental disease. This program, the Veterans Administration announced Dec. 10, 1948, is beginning to have results. Two hundred World War II veterans whose mental illnesses had failed to respond to previous methods of treatment were selected to take part in the program. These patients now are on a completely supervised schedule from 7 a.m. to 9 p.m. five days a week. The basic aim is to increase the patients' interest, starting with some simple form of athletics, to relieve the aggressive tendencies and tensions which many of them display. The group is alternated between occupational therapy, corrective therapy, athletics and recreation. Miniature bowling and table tennis, for example, are suggested to encourage the spirit of competition. Individual and group psychotherapy is available. As individual patients show interest in the activities, they are advanced to more difficult tasks. While progress is extremely slow, it indicates a potential discharge rate of nearly 40 per cent for a class of patients previously considered probably lifetime hospital patients. In the group mentioned, 16 patients have returned home and 14 others will soon leave on trial visits. Forty-five others are considered good prospects for eventual release; 2 of the 16 discharged patients are now employed full time.

The program at Northport has been under the direction of Dr. William L. Harris, with Dr. Louis F. Verdel, hospital manager, as coordinator. Since its inauguration at Northport in December 1947, the program has been adopted by several other Veterans Administration neuropsychiatric hospitals.

## RESIDENCIES IN NEUROLOGY

An additional residency training program for physicians desiring to train in neurology under the Veterans Administration has been organized by the Philadelphia Deans Committee. This residency covers a period of three years or less, depending on the previous experience of an applicant, and is designed to prepare residents for certification in neurology by the American Board of Psychiatry and Neurology. The program includes rotation through the Veterans Administration Hospital, Coatesville, Pa., Veterans Administration Regional Office, Philadelphia, and the Philadelphia General Hospital. Applications should be sent to the Manager, Veterans Administration Hospital, Coatesville, Pa.

## NEW HOSPITAL AT HOUSTON, TEXAS

Bids for the construction of a thousand bed veterans neuropsychiatric hospital at Houston, Texas, have been awarded to the low bidders for $17,788,000 for general construction and $529,000 for staff quarters; also to another corporation $470,380 for installation of elevators and $95,100 to still another corporation for the construction of a water tank.

### THE NUMBER OF VETERANS

The Veterans Administration announced that as of October 31 the total number of living veterans of all wars was 18,819,000, of whom 14,997,000 were veterans of World War II. The total number of veterans in hospitals on that date was 105,762, of whom 68,992 were veterans with non-service-connected disabilities. There were in addition 15,026 veterans beneficiaries in Veterans Administration homes. Two new Veterans Administration hospitals had been completed through the end of the month of October, and eighty-nine veteran hospitals were in various stages of the construction program.

### PERSONAL

Dr. A. Ray Dawson has resigned as assistant medical director for physical medicine rehabilitation in the Veterans Administration and will return to Richmond, Va., as chief of physical medicine at the McGuire Veterans Administration Hospital. His successor will be Dr. A. B. C. Knudson.

Dr. Joseph M. Farrell has been appointed to the full time staff of the Veterans Administration hospital, Huntington, W. Va. Dr. Farrell was graduated from Long Island College of Medicine in 1942 and served in the Army Medical Corps during the recent war.

## PUBLIC HEALTH SERVICE

### NATIONAL ADVISORY HEART COUNCIL

At a recent meeting in Bethesda, Md., this council resolved that about $30,000,000 would be necessary for adequate execution of the plan to assist hospitals and medical schools with the necessary laboratory facilities for research on heart disease on a five year basis. Applications were received from fifty-one hospitals and medical schools, but further study of them was decided on before final recommendation to the Surgeon General. The council also recommended, subject to its further review, applications totaling about $3,000,000 for promising research investigations. Applications were considered from thirty-seven medical schools for grants to improve and expand cardiovascular teaching and approval was tentatively recommended of applications totaling about $1,350,000; also considered were applications for grants for control projects (special pilot studies) preliminary to the development of statewide and community heart disease control programs throughout the country. The council recommended the approval of applications for about $200,000 for these special studies, for which funds are presently available. The next meeting of the National Advisory Heart Council, which is composed of leaders in medical science and public affairs with Dr. Paul D. White of Boston as director, will be held in New Orleans February 27 to March 1, 1949.

### REGULAR CORPS EXAMINATION FOR NURSE OFFICERS

A competitive examination for appointment of nurse officers in the regular corps of the U. S. Public Health Service will be held on March 17, 1949, at various points in the United States. Appointments are permanent in nature and provide opportunities for a lifetime career in the fields of clinical and public health nursing at Marine hospitals and in a variety of public health programs. Appointments will be made in the grades of junior assistant, assistant and senior assistant nurse officer. Annual entrance pay is from $2,955.50 to $4,489, as determined by the grade of appointment and existence of dependents. All applicants must be registered nurses with a baccalaureate degree from an approved school of nursing. Past nursing experience in the Army, Navy or Public Health Service may serve, in certain instances, in lieu of academic degree. Additional information may be obtained by writing to the Surgeon General, United States Public Health Service, Washington 25, D. C., Attention: Division of Commissioned Officers.

### MENTAL HEALTH COUNCIL

The meeting of The National Advisory Mental Health Council in Washington, D. C., December 12-13, marked the completion of two and one-half years of the expanded national mental health program authorized by the National Mental Health Act of 1946. The council recommended twelve new mental health research grants which totaled $121,735 and undergraduate training grants in psychiatry in forty-two schools of medicine, approximating $1,500,000 over a three year period. The applications now go to the Surgeon General of the Public Health Service for official approval and payments will be made as funds become available. As the entire appropriation for research and training for the current fiscal year—a total of $2,000,000—has been previously obligated, payments on the grants approved at this meeting will not be made before the 1950 fiscal year. The National Advisory Mental Health Council is composed of authorities in mental health appointed to advise the Public Health Service in its administration of the Mental Health Act.

### HOSPITAL SURVEY AND CONSTRUCTION ACT

The Hospital Facilities Division of the Public Health Service announced that as of Nov. 26, 1948, five hundred and sixty-four initial project applications for federal grants under the Hospital Survey and Construction Act had been approved by the Surgeon General. The Division estimated that over one hundred projects are actually in the construction stage. The total estimated cost of the five hundred and sixty-four projects is over $341,000,000. The federal share of this is estimated at over $103,000,000.

### PERSONAL

Dr. Maurice A. Roe has been appointed medical director for the Public Health Service in Region 8 of the Federal Security Agency with headquarters in Dallas, Texas, succeeding Dr. Knox E. Miller, who has been assigned to the City Health Department in Milwaukee.

Dr. Warfield Garson, formerly visiting associate research specialist at the New Jersey Agricultural Experiment Station, Rutgers University, New Brunswick, has been placed in charge of antibiotic research at the V. D. Research Laboratory, U. S. Marine Hospital, Staten Island, N. Y.

## MISCELLANEOUS

### DR. HUMPHREYS HEADS RADIOMETRY RESEARCH

Curtis J. Humphreys, Ph.D., has been named chief of the Radiometry Section of the Atomic and Molecular Physics Division, National Bureau of Standards, where he will be concerned with standards of radiant energy, analysis of infra-red and ultraviolet absorption and emission spectrums, line emission spectrums and flame spectrums in the infra-red, and the utilization of photoconducting detectors in high resolution spectroscopy.

Dr. Humphreys, who is well known for his research in spectroscopy, has been associated with the Bureau since 1928, with the exception of 1934 and 1935, when he was on the staffs of the Massachusetts Institute of Technology and the United States Coast and Geodetic Survey. From 1922 to 1927 he was a member of the faculty of Western Reserve University and from 1921 to 1922 was a research assistant at the University of Michigan. Between 1919 and 1921 he was an instructor in physics at the University of Kentucky. He received his Ph.D. from the University of Michigan in 1928.

# Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

## ARIZONA

**Reorganize State Department of Health.**—The new plan for organization adopted by the State Board of Health for the Arizona State Department of Health establishes the following bureaus in the department: administration, preventive medical services, local health services and sanitation. Dr. Elmore P. Kalbaugh, recently assigned to Arizona by the U. S. Public Health Service, has assumed the position of director of the state health department's Division of Tuberculosis Control. He is a graduate of the Medical College of Virginia at Richmond.

## CALIFORNIA

**Third Institute on Alcohol Studies.**—A third Institute on Alcohol Studies is tentatively set for the first week in February to be held on the Los Angeles campus of the University of California under the auspices of the Department of Institutes of University Extension. Representatives of social, medical, education, religious and legal groups will be asked to present their views in large general sessions, and opportunity for critical discussion will be provided in small sessions. Persons interested in attending may obtain information from the Department of Institutes, University of California, Los Angeles 24.

## CONNECTICUT

**Yale Retirements.**—The retirement of three members of the faculty of Yale University School of Medicine has been announced: Dr. Arthur H. Morse, professor of obstetrics and gynecology; Dr. George M. Smith, research associate in anatomy with the rank of professor, and Miss Alice M. Hunt, assistant professor of anesthesia.

**Dr. Fisher Honored.**—The new laboratory of the Middlesex Hospital in Middletown is to be named in honor of Dr. Jessie W. Fisher "to mark her long and faithful service to the institution as pathologist and bacteriologist." After graduation from the Woman's Medical College, Philadelphia, in 1893, Dr. Fisher went to Middletown as a pathologist in the Connecticut State Hospital, and formed her connection with the Middlesex Hospital in 1916.

## DISTRICT OF COLUMBIA

**Seminar on Tumors of the Skin.**—The Washington Society of Pathologists of Washington, D. C., announces a joint Baltimore-Washington Seminar on Tumors of the Skin to be held in the auditorium of the Medical Society, District of Columbia, February 5, from 10:30 a. m. to 4:30 p. m. Col. James E. Ash, Washington, and Drs. Arthur A. Allen, Paterson, N. J., and Elson B. Helwig, St. Louis, will serve as principal discussants. Pathologists, dermatologists and other physicians in Washington and surrounding areas are cordially invited. Study material for the seminar will be issued from the agency of the American Registry of Pathology on or about December 27 for one month's study prior to the day of the seminar. Washington and Baltimore members of the respective pathology societies are requested to return the diagnostic list on the study material to Dr. Ruell A. Sloan, Curator of the Army Medical Museum, no later than January 23.

## GEORGIA

**Obstetric Seminar.**—An Obstetric Seminar for general practitioners was held at the University of Georgia School of Medicine, Augusta, Dec. 6-10, 1948, under the auspices of the departments of public health of Georgia and South Carolina and under the direction of Drs. Guy V. Rice, Albany, and Hilla Sheriff, Columbia, S. C. About fifty attended.

**Personal.**—Dr. Jack C. Norris, Atlanta, has been named chairman of the cancer commission of the Medical Association of Georgia, succeeding the late Dr. James L. Campbell, Atlanta. The commission coordinates the cancer control program of the state medical association, the American Cancer Society and the Cancer Control Division of the Georgia Department of Public Health.

## ILLINOIS

**Personal.**—Dr. James R. Hughes of Oak Park has been appointed chief of medical service at the Veterans Hospital in North Little Rock, Ark., and also has accepted an apointment as associate professor of medicine at the University of Arkansas School of Medicine, Little Rock. Dr. Hughes formerly was an associate to an attending physician of Cook County Hospital.

**Dr. Sayago to Address Joint Meeting.**—Dr. Gumersindo Sayago of Cordoba, Argentina, will be the after dinner speaker at a joint meeting of the Chicago Tuberculosis Society and the Illinois Chapter of the American College of Chest Physicians at the Congress Hotel, Chicago, January 7 at 6:30 p. m. Dr. Sayago has just returned from a medical mission to the Philippine Islands, which was sponsored by the World Health Organization. Reservations should be made immediately with Dr. Edwin R. Levine, secretary of the Chicago Tuberculosis Society, 500 North Dearborn Street, Chicago 10. A scientific program will be presented after the meeting.

**Television Enlisted for Health Education.**—New technics in health education made possible by television are being worked out in a series of radio programs recently begun by WGN-TV, Chicago, with the cooperation of the Educational Committee of the Illinois State Medical Society. The first program featured a 9 year old boy, a diabetic, demonstrating how he gives himself a daily injection of insulin. A mother of two daughters, a victim of diabetes, also appeared on the program, which was built around an interview with Dr. Henry T. Ricketts, associate professor of medicine, University of Chicago School of Medicine, and Dr. Chester Coggeshall, associate in medicine at Northwestern University Medical School. Both doctors emphasized the need for careful training of the patient so that he understands the nature of the disease and the importance of balancing food, insulin and energy output. A second program in the series dealing with birthmarks is being planned.

### Chicago

**Society News.**—The North Side Branch of the Chicago Medical Society, meeting January 6 at 8 p. m. at the Drake Hotel, will hear Dr. Robert W. Keeton, Chicago, speak on "Types of Uremia and Their Treatment" and Dr. Ovid O. Meyer, Madison, Wis., on "Present Status of Treatment of the Anemias."

**Dr. Phemister to Give the Fenger Lecture.**—Dr. Dallas B. Phemister, chairman emeritus, department of surgery, University of Chicago School of Medicine, will deliver the thirteenth Christian Fenger Lecture of the Institute of Medicine of Chicago and the Chicago Pathological Society January 10 at the Palmer House, on "Circulatory Disturbances of the Skeletal System."

**Library Memorial Fund.**—Northwestern University has received a fund of $10,000 in memory of the wife of Ronald J. Chinnock, Chicago. Income from the gift will be used for benefit of the Archibald Church Library of the medical school. Purchase and maintenance of books on the subject of cancer, degenerative diseases and allied medical fields were recommended for special attention in the administration of the fund.

**Illinois University Appointments.**—Five appointments to the faculty of the University of Illinois College of Medicine have been announced. Dr. Lewis Haas, recently appointed assistant professor of radiology, served as head of the x-ray department of the Koranyi City Hospital in Budapest, Hungary, from 1945 to 1948 and held the rank of associate professor of roentgenology at the medical school of the State University in Budapest from 1946 to 1948. Nathan O. Kaplan, Ph.D., a research associate at Massachusetts General Hospital, Boston, has been appointed professor of the department of biological chemistry effective January 1. Dr. Kaplan was associated with the Manhattan project during the war. He is a graduate of the University of California at Los Angeles and received his Ph.D. degree in biochemistry from the University of California, Berkeley. Dr. Arthur A. Rodriquez has been appointed professor of physical medicine. A graduate of the University of Illinois, Dr. Rodriquez previously served as director of the fever therapy department of the Chicago Intensive Treatment Center. He was a Baruch fellow in physical medicine. Dr. Audrey Wilson has rejoined the faculty as an assistant professor of radiology following a year of residence in Phoenix, Ariz. A graduate of Northwestern University Medical School, she originally joined the faculty in October 1945. Dr. Max. C. Igloe, new head of Chicago Health Department's district health services division, has been appointed associate professor in the department of preventive medicine and public health on a part time basis at the University of Illinois College of Medicine. The new District Center at 802 South Paulina Street will be available to students of medical schools in Chicago for training in public health. Before joining the Chicago Health Department, Dr. Igloe served as chief of the outpatient section of the Veterans Administration Branch in Chicago.

## LOUISIANA

**Testimonial to Dr. Maes.**—In celebration of his seventieth birthday a testimonal dinner was given to Dr. Urban Maes by patients and friends in New Orleans October 29. Speakers included members of the faculty of the Louisiana State University School of Medicine and representatives of staffs and boards of trustees of Touro Infirmary and Charity Hospital. Dr. Maes retired as professor and head of the department of surgery and was appointed professor emeritus in 1947. He recently completed fifty years of practice at Touro Infirmary.

**Research on Diarrheal Diseases.**—A large scale research project on diarrheal diseases of infancy has been instituted at the Tulane University of Louisiana School of Medicine and Charity Hospital under the joint auspices of the departments of preventive medicine and pediatrics and the U. S. Public Health Service. Studies will be carried out on the bacterial and viral flora of the intestines of normal infants and alterations which occur with the onset of diarrhea. Methods by which the disease is spread from one infant to another and new forms of treatment will also be investigated. A team of physicians and nurses will be prepared to investigate such epidemics wherever they may develop throughout the South. Dr. James Watt, of the faculty and surgeon, U. S. Public Health Service, is director of the study. Dr. Myron E. Wegman, Dr. Robert L. Simmons and other members of the department of pediatrics and preventive medicine will be closely associated with several phases of the problem.

## MASSACHUSETTS

**Society Meetings.**—The Norfolk District Medical Society, meeting at the Boston Medical Library January 25, will hear three speakers discuss geriatrics, Drs. Theodore G. Klumpp, New York, and Robert T. Monroe and John Homans of Boston. At their meeting February 23 there will be a symposium on thromboembolic disease with Drs. William C. Moloney and E. Everett O'Neil, both of Boston, and James M. Evans, New York, taking part.

**Massachusetts General to Construct Research Building.**—Massachusetts General Hospital, Boston, announces plans for the construction of a $2,750,000 research building to permit consolidation and expansion of its research program. Construction is expected to start immediately after completion of plans April 1. Research will be conducted in cooperation with Harvard Medical School, Boston, and the Massachusetts Institute of Technology, Cambridge. The new building will contain psychiatry, pathology, cardiovascular and cancer laboratories, clinical laboratories for arthritis and endocrinology and research laboratories for biochemistry, enzyme chemistry, routine chemistry, cellular biology, experimental pathology and physics.

## MISSISSIPPI

**Personal.**—Dr. Felix J. Underwood, Jackson, state health officer, is the recipient of a plaque as an "award for meritorious service as campaigning chairman for the state division of the American Cancer Society in its 1948 campaign."

**More than Fifty Years of Practice.**—In a service at Baptist Church in Raymond, Dr. Frank G. Goodwin, Hinds County physician for fifty-nine years, was presented a certificate by the Mississippi State Medical Society and other tokens of appreciation from the church for his service to the community. Dr. Goodwin is a graduate of the Medical Department of Tulane University of Louisiana, 1889. He has practiced in the Raymond community for forty years.

**Student Scholarship Loans.**—Sixteen young men have been conditionally approved for medical education loans by the State Medical Education Board. Fifteen of this midyear group are veterans of World War II. One will attend Emory University School of Medicine, Atlanta; the others, the University of Mississippi School of Medicine, University. These men are a part of the 164 who have been approved by the State Medical Education Board for these loans. Recipients of such loans agree to become family doctors in approved rural sections for two to five years, all students being obligated for the minimum period of two years regardless of the amount borrowed.

## MISSOURI

**Personal.**—Dr. Clyde W. Geiter, Kansas City, has been appointed vice president of George A. Breon & Company, manufacturers and distributors of pharmaceutic preparations, Kansas City. Dr. Geiter was appointed medical director early this year. He is a graduate of Creighton University School of Medicine, Omaha, 1941.

**Dr. Foster to Direct Pharmacology Department.**—Dr. Robert H. K. Foster has been appointed professor and director of the department of pharmacology at St. Louis University School of Medicine, replacing the late Dr. John Auer, who died April 30. Dr. Foster received his M.D. degree from the University of Chicago in 1935, and formerly was chief pharmacologist with Hoffman La Roche, Incorporated, Nutley, N. J.

## NEW YORK

**Warning of Thefts of Narcotics.**—Dr. Herman E. Hilleboe, state health commissioner, issued a warning December 8 to hospitals, pharmacists and physicians to take greater care in guarding narcotic drug supplies. There have been more than twenty major thefts of such supplies from state hospitals during the last year in New York City, Buffalo, Troy, Syracuse, Rochester, Schenectady and Jamestown. He suggested prompt installation of suitable storage space, adequate protection of doors and windows leading to stockrooms, keeping working stocks at a minimum and returning working drug stocks to protective storage when drugs are not in active use.

### New York City

**Extend Diagnostic Service to Physicians.**—To make possible extension of the health department's diagnostic services to physicians, a pilot clinic is being established at the Lower West Side Health Center on Ninth Avenue in Manhattan. The clinic is expected to accept each month about 300 new ambulatory indigent patients on referral of physicians. The results of all examinations and laboratory studies and summary of the case with comments will be sent to referring physicians to whom the patient will be instructed to return.

**New Cancer Research Unit at Columbia.**—Columbia has announced plans to construct a $2,000,000 cancer research unit at the Columbia-Presbyterian Medical Canter. Three floors of new laboratories will be constructed atop the present Vanderbilt Clinic and will be in continuity with the existing laboratories of the medical school and in close relationship to the wards of Presbyterian Hospital. Work is to begin early in 1949 and is expected to be completed in 1950. The National Advisory Cancer Council will provide $1,000,000.

**Course in Medical Records.**—A course in medical records will be presented at the Columbia-Presbyterian Medical Center February 1 to March 17, 7-8:40 p. m. Tuesdays. The course will deal with the unit medical record and with requirements and problems peculiar to the system. It also aims to acquaint the student with The "Standard Nomenclature of Disease and Standard Nomenclature of Operations." Tuition is $40. Application should be made to the Director of University Admissions, Columbia University, 116th Street and Broadway, New York 27.

**Venereal Disease Control Program.**—The first phase of the venereal disease control program initiated by the Department of Health November 8 has been described as "an unqualified success" by Dr. Harry S. Mustard, Commissioner of Health. The number of persons coming to the city's social hygiene stations for the first time was two and one-half times the normal total, an increase of 10,000 during the month. Requests by doctors and hospital outpatient departments for free penicillin for the treatment of early syphilis, syphilis in pregnancy and gonorrhea rose 400 per cent during the month of the campaign, as compared with October, the first month during which the drugs were made available, "a proof of the cooperation of private physicians." Three million leaflets and 75,000 posters telling of advanced technics of treatment, emphasizing clean living and urging examinations, were distributed. Five county medical societies gave full endorsement to the program.

## PENNSYLVANIA

**Dr. Wolffe Wins Award.**—The Laymen's Honor Award of the Pennsylvania Association for Health, Physical Education and Recreation was conferred recently on Dr. Joseph B. Wolffe, of the Wolffe Clinic in Philadelphia at a December dinner meeting of the association. Dr. Wolffe becomes the fifth winner of the annual award, which is restricted to persons not actively or regularly engaged in physical education or recreational work. Dr. Wolffe and his associates conducted an extensive cardiovascular study of athletes.

### Philadelphia

**University Appointment.**—Dr. Wilbur C. Thomas, assistant professor of pathology at the Bowman Gray School of Medicine of Wake Forest College, Winston-Salem, N. C., has been appointed associate professor of pathology at Temple University School of Medicine.

**Dedicate Betatron.**—The betatron laboratory at the University of Pennsylvania was dedicated December 6, and will be used by the university's department of physics in its research program carried on jointly with the Office of Naval Research. Capable of accelerating electrons to 22,000,000 volts, the betatron was installed in a specially constructed laboratory at a cost of more than $200,000.

**Health Survey of Philadelphia.**—A citywide health survey of Philadelphia, conducted by the Health and Welfare Council, is expected to start this month. The survey will be directed by Dr. Carl E. Buck, New York, who has made many other surveys. The work will be carried out under the general supervision of an executive committee appointed by the City Planning Commission, the Philadelphia Department of Public Health and the Health and Welfare Council. Information gathered will be of particular interest to the department of health as a basis for carrying out a program for the decentralization of city health services.

## TENNESSEE

**East Tennessee Heart Association.**—The Knoxville Academy of Medicine initiated the formation of the East Tennessee Heart Association, organized November 17 primarily as a lay group. Its purpose is to promote research in heart disease in conjunction with the American Heart Association.

**Cerebral Palsy Center Opened.**—The Cerebral Palsy Center, Knoxville, established through the cooperation of the Tennessee Society for Crippled Children and Disabled Adults, the Elks, St. Mary's Memorial Hospital and the Cerebral Parents Council of Knoxville, opened in September in St. Mary's Memorial Hospital. The Knoxville Elks provided the fund of $10,000 to establish and maintain the center.

## GENERAL

**Social Hygiene Day.**—The American Social Hygiene Association has set February 2 as National Social Hygiene Day with the theme "Protect the Family . . . Stamp Out VD." The day will be observed in thousands of cities at meetings, rallies, institutes and forums on February 2, and throughout the rest of the month. Program and publicity aid materials may be secured now by writing to the American Social Hygiene Association, 1790 Broadway, New York 19.

**Heart Disease Research Grants.**—To encourage urgently needed research into the heart diseases, the American Heart Association invites application for fellowships and grants in the cardiovascular field. Application blanks are available from the association's medical director, Dr. Charles A. Connor, 1775 Broadway, New York 19. The program of the Heart Association is closely coordinated with that of the National Heart Institute of the U. S. Public Health Service and with the Life Insurance Medical Research Fund.

**Complete Inventory of Nurses.**—At the request of the National Security Resources Board, the American Nurses' Association will direct a complete inventory of all professional registered nurses in the United States and its territories. Final tabulation is expected to be completed by June 1949. The National Security Resources Board is a permanent civilian agency reporting direct to the President of the United States. It is charged with formulating for the President plans and policies concerning industrial and civilian mobilization of the nation's man power in the event of war.

**Research on Alcoholism.**—The Research Council on Problems of Alcohol will award two grants-in-aid of about $2,500 each to the Biochemical Institute of the University of Texas at Austin, Texas, and to the University of Washington School of Medicine, Seattle, for fundamental research on the problems of alcoholism. The Texas award is the second granted within the past year to carry on the basic research of Dr. Roger J. Williams on the possible physiologic causes underlying problem drinking. The Washington award is to facilitate the research of Dr. Walter L. Voegtlin in the determination of possible allergic factors underlying chronic alcoholism.

**Dr. Rusk Receives Award.**—Dr. Howard A. Rusk received a meritorious award of the National Rehabilitation Association for outstanding service in the field of rehabilitation December 7. Dr. Rusk, who was wartime chief of the Army Air Forces' rehabilitation program, is professor and chairman of the department of rehabilitation and physical medicine at New York University College of Medicine, and an associate editor of *The New York Times*. He is also director of the new Institute of Rehabilitation and Physical Medicine of the New York University—Bellevue Medical Center, consultant in rehabilitation to the United Nations and a member of the Advisory Board of the Office of Vocational Rehabilitation.

**The Rising Birth Rate.**—According to the *Statistical Bulletin* of the Metropolitan Life Insurance Company the birth rate in the United States shows an increase in productivity among women past the prime of reproductive life, a reversal of the downward trend in evidence for many years. At the ages 35 to 39 the birth rate among white women rose more than one third between 1939 and 1946, i. e., from 42 per 100,000 to 57, after having fallen steadily from about 80 per 1,000 in the period immediately following World War I. At the ages 40 to 44 the rate has also shown an upward tendency in recent years. The rate for first births has increased almost continuously since 1933; it reached a wartime peak of 26 per 1,000 in 1942, declined in the next three years and rose to an unprecedented 27 per 1,000 in 1946, when the number of first births was 1,150,000. For both first and second children the birth rates in 1946 were considerably above the levels recorded a generation ago. The average age at which women have their first, second and third child has gone up almost a year since the 1930's. For the years immediately ahead, the outlook is that the birth rate among women having their first child will decrease gradually, paralleling the slow decline of the marriage rate.

**Communicable Disease Report.**—While the seasonal decline in poliomyelitis continues, above normal seasonal incidence persists unusually late in a few states, according to the U. S. Public Health Service. A total of 360 cases was reported for the week ending December 15, as compared with 440 for the previous week, 524 for the next earlier week, 132 in 1947, 241 in 1946 and a five year median of 133 for the respective corresponding weeks. Of the current total, one third (122 cases) were reported in California, 24 cases in North Carolina, 22 in Minnesota and 19 each in Texas and Iowa; this is 57 per cent found in these five states. The total to date is 27,032 as compared with 10,575 in 1947, 24,763 in 1946 and a five year median of 13,443 for the respective corresponding periods. The September death rate for poliomyelitis (based on a 10 per cent sample of death certificates) was 3.5 per 100,000 population, which is above the expectancy based on the trend in the past ten years, and the rate of 1.2 for the first nine months of the year is higher than any rate recorded for a corresponding period in the past decade.

Measles is being reported in epidemic proportions in some areas. The reported incidence increased from 5,345 cases for the preceding week to 6,337 for the week ending December 15, of which 42 per cent occurred in the New England and Middle Atlantic states. The current figure and the total since the average seasonal low week (week ended Sept. 4, 1948), 33,269, are above the figures for all corresponding periods since 1943 (8,161 and 41,442, respectively).

## CORRECTION

**d-Tubocurarine in Wax and Oil.**—In the article by this title in The Journal, Dec. 11, 1948, page 1087, the word "milligrams" throughout the article should read "standard units." Each cubic centimeter of this preparation contains 27 mg. d-tubocurarine chloride pentahydrate (equivalent to approximately 175 units) and 48 mg. of myricin (wax) suspended in peanut oil. The charts in the article are correct.

# Marriages

Richard R. Royer, Grosse Pointe, Mich., to Miss Carolyn Stewart Wander of Maplewood, N. J., in Orange, N. J., September 11.

Marshall Wayne Woodard, Asheville, N. C., to Miss Patsy Ruth Jackson of Man, W. Va., September 18.

Charles Elroy Llewellyn Jr., Richmond, Va., to Miss Sara Grace Eldridge of Fort Smith, Ark., September 25.

A. Irvins C. De Friez, Boston, to Miss Amey Amory, of Dover, Mass., in Wellesley, Mass., September 18.

Kelly Tilson McKee, Bristol, Tenn., to Miss Gladys Harvath at Lynchburg, Va., recently.

W. Robert Elghammer, Chicago, to Miss Doris Elizabeth Postlewaite of Palatine, Ill., recently.

Dyer Carlisle Jr., Birmingham, Ala., to Miss Fleda Frances Baines of Gordo, September 27.

Charles A. Hogben, Rochester, Minn., to Miss Ann Stanbery in San Francisco, recently.

# Deaths

**Hugh Smith Cumming** ⊕ formerly Surgeon General of the U. S. Public Health Service, died at his home in Washington, D. C., December 20, aged 79. Dr. Cumming was born in Hampton, Va., Aug. 17, 1869. His education was obtained at Symmes Eaton Academy and Baltimore City College. He was graduated from the University of Virginia Department of Medicine, Charlottesville, in 1893 and from the University College of Medicine, Richmond, 1894, in which year he entered the U. S. Public Health Service as assistant surgeon. In 1899 he was promoted to passed assistant surgeon and served as chief quarantine officer in the South Atlantic and San Francisco until 1906, when he became medical officer attached to the U. S. Consulate in Yokahama, Japan. While chief quarantine officer at Hampton Roads in 1911, he was promoted to surgeon, in 1918 to Assistant Surgeon General and in February 1920 to Surgeon General. Subsequently he made a study of the pollution of navigable streams which was followed by an investigation of coastal waters along the Atlantic seaboard. During World War I he was detailed to the Navy as adviser in sanitation and later was sent to Europe in charge of public health service activities relating to sanitation, returning troops and the resumption of trade. He then served as president of the Inter-Allied Sanitary Commission to Poland, from where he was recalled to the United States to assume the position of Surgeon General in 1920. In 1945, on his twenty-fifth anniversary as director of the Pan American Sanitary Bureau, he received the gold medal from the Republic of Guatemala. He was president of the National Board of Medical Examiners from 1934 to 1936, president of the Southern Medical Association, 1930, American Public Health Association, 1931 and in 1924 the Association of Military Surgeons of the United States, from which in 1943 he received the Gorgas Medal. He was the recipient in 1936 of the Hartley Gold Medal of the National Academy of Sciences and in 1944 the William Freeman Snow Medal from the American Social Hygiene Association. He had represented the United States as head of the American delegation at the Pan American Sanitary conferences at Lima, Peru, Havana, Cuba, and Buenos Aires, Argentina; in 1919 member of the Cannes Conferences and of the Advisory Committee of the League of Red Cross Societies, served as president of the fifth Pan American Conference of National Directors of Health and was a member of the American Delegation to the Immigration Conference in Rome. He was head of the American delegation at a meeting of the Office International d'Hygiene Publique, which proposed the new International Sanitary Treaty, and a member of the international meeting which proposed the Pan American Sanitary Code. He was a member of the Permanent Committee of the Office International d'Hygiene Publique, and a member of the health committee, League of Nations, since its inception and vice president for many years. Dr. Cumming received the decoration of Commander of the Legion of Honor of France and the decoration Commander with Star, Polonia Restituta (Poland), and had been tendered the Order Al Merito of Ecuador, the Order of Carlos Finley of Cuba and El Sol of Peru. He received decorations from Chile, Colombia, Dominican Republic, Haiti and Mexico. Dr. Cumming's administration of the Public Health Service is credited with completion of the federal quarantine system, inauguration of preimmigration examinations at American consulates, establishment of the national leprosarium at Carville, La., and national narcotic farms, the construction of eight marine hospitals and fostering scientific research.

The President nominated Dr. Cumming for a fourth term as Surgeon General, effective March 10, 1932. He retired from active duty on Jan. 31, 1936, having served as an officer of the U. S. Public Health Service for forty-two years, and as Surgeon General for sixteen years. In addition to duties directly connected with the Public Health Service, Dr. Cumming was a member of the Board of Hospitalization formed by the President for the purpose of making recommendations concerning the expenditure of funds for the purchase and erection of hospitals used by the Veterans Bureau. He was a member of the board of visitors of St. Elizabeth's, Garfield Memorial and Columbia hospitals, chairman of the Section on Public Health Organizations of the White House Conference on Child Health Protection, honorary chairman of the Section on Public Health and Medicine, Eighth American Scientific Congress and an honorary fellow of the American College of Surgeons, American College of Physicians, Royal Society of Medicine, London, National Academy of Medicine, Peru, and the National Academy of Medicine, Mexico. He received the honorary degrees of Sc.D. from the University of Pennsylvania in 1930 and LL.D from Yale University in 1933. Dr. Cumming was honorary professor at the University of Santo Domingo, honorary director of the National Public Health Service of Paraguay, member of the Medical Society of the Dominican Republic, member of the Sigma XI and other honor societies.

Dr. Hugh Cumming was, throughout his life, a firm supporter of the ideals of American medicine. He was forthright in his views and dependable in his actions. His friendships were innumerable and his loss is mourned by many great leaders of medicine who held him dear.

**Frank Henry Ewerhardt** ⊕ of Richmond Heights, Mo., assistant professor emeritus of physical therapeutics at Washington University School of Medicine, St. Louis, died at the Barnes Hospital, St. Louis, October 15, aged 71, of acute leukemia. Dr. Ewerhardt was born in Sheboygan, Wis., Jan. 25, 1877. In the early 1900's he went to St. Louis, where he became director of the gymnasium and athletics of Smith Academy. In 1904 he joined the staff of Washington University as director of physical training, a position he held until 1913. He received his medical degree from Washington University School of Medicine in 1910. In 1913 he joined the medical faculty at his alma mater as assistant in anatomy; in 1915 he transferred to the department of medicine and in 1922 received his first appointment in the department of physical therapeutics. From 1933 through 1946, when he retired, he was director of physical education and director of university health. Dr. Ewerhardt was a past president and member of the executive council of the American Congress of Physical Medicine, which in September 1948 awarded him the Gold Key for outstanding service in physical medicine. He was a fellow of the American Association for the Advancement of Science, a member of the board of the Registry of Physical Therapy Technicians and a past president of the American Society of Physical Medicine. During World War II he was the health officer in charge, U. S. Army Hospital, Washington University. Dr. Ewerhardt served as consultant in physical medicine rehabilitation to the Veterans Administration, branch office number 9, and to the Council on Physical Medicine of the American Medical Association. He was a member of the original American Board of Physical Medicine, having been certified in 1947, and in 1945 and 1946 of the subcommittee on physical therapy of the National Research Council. He was emeritus chief of physical medicine of St. Louis Children's Hospital, Barnes Hospital, McMillan Hospital, Maternity Hospital and Washington University Clinics. He was co-author of "Therapeutic Exercise," which was published in 1947. He contributed the chapter on the "Use of Heat and Cold" in "Principles and Practice of Physical Medicine" and the chapters on "Physical Exercise" and "Posture" in Glasser's "Medical Physics."

**Walter Clinton Jones** ⊕ Florence, Ala.; born in Chicago, May 2, 1874; Northwestern University Medical School, Chicago, 1902; specialist certified by the American Board of Pathology; past president of the Alabama Association of Pathologists; member of the Southern Medical Association, American Society of Clinical Pathologists and the American Association for the Advancement of Science; fellow of the American College of Surgeons; at one time on the faculties of his alma mater, University of Illinois College of Medicine in Chicago, Medical College of Alabama, Mobile, and the Birmingham-Southern College; served on the staffs of the Employees' Hospital of the Tennessee Coal, Iron and Railroad Company in Fairfield, Bessemer (Ala.) General Hospital, Norwood, St. Vincent's and East End Memorial hospitals in Birmingham, Colbert County Hospital, Sheffield, and the Evanston (Ill.) Hospital; died October 27, aged 74, of heart block.

**Eldwin Roy Witwer** ⊕ Detroit; born in Blake, Ontario, Canada, Aug. 23, 1890; Detroit College of Medicine and Surgery, 1914; assistant professor of radiology at the Wayne University College of Medicine; specialist certified by the American Board of Radiology; councilor of the Sixteenth District of the Michigan State Medical Society; past president of the Radiological Society of North America; past president and for many years secretary and treasurer of the Detroit Roentgen Ray and Radium Society; member of the commission on public health of the American College of Radiology; member of the American Roentgen Ray Society; affiliated with the Harper, Children's and Cottage hospitals; died November 2, aged 58.

**Theodore C. F. Abel,** Chicago; Jenner Medical College, Chicago, 1903; for many years medical director of Abel Laboratories; died in St. Francis Hospital, Evanston, Ill., October 24, aged 79, of thrombophlebitis of the right leg and cardiac insufficiency as the result of injuries received in a bus accident.

**William Howard Allen,** Mansfield, Mass.; Harvard Medical School, Boston, 1894; member of the American Medical Association; past president of the North Bristol Medical Society; served during World War I; for many years member of the school committee and board of health; died recently, aged 80, of coronary thrombosis.

**Ralph Nordock Arnold,** Greenfield, Ind.; the Hahnemann Medical College and Hospital, Chicago, 1917; member of the American Medical Association; served during World War I; county health commissioner; died October 19, aged 56, of coronary occlusion.

**Charles E. Baker,** Marietta, N. Y.; Eclectic Medical College of the City of New York, 1882; died in Sullivan recently, aged 90, of myocarditis and arteriosclerosis.

**Cornelius B. Barry,** Woonsocket, R. I.; College of Physicians and Surgeons, Baltimore, 1907; state senator; died recently, aged 69.

**Frederic Huntington Bartlett** ⊕ New York; Columbia University College of Physicians and Surgeons, New York, 1905; specialist certified by the American Board of Pediatrics, Inc.; member of the American Pediatric Society; served during World War I; author of "Infants and Children: Their Feeding and Growth"; for many years affiliated with the Babies Hospital; died October 19, aged 76, of coronary occlusion.

**Munson Russell Bixel,** Bluffton, Ohio; Eclectic Medical College, Cincinnati, 1925; served as vice president of the Allen County Board of Health and member of the board of trustees of the Bluffton College; affiliated with Bluffton Community Hospital, where he died October 3, aged 52, of coronary thrombosis.

**Harriet M. Carbaugh,** Lansing, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1888; died October 7, aged 85.

**Hayes William Carlin,** Los Angeles; Northwestern University Medical School, Chicago, 1909; died in Seattle October 28, aged 62, of coronary occlusion.

**Scott Parker Child** ⊕ Kansas City, Mo.; University of Pennsylvania Department of Medicine, Philadelphia, 1896; an Affiliate Fellow of the American Medical Association; past president of the Jackson County Medical Society; at one time vice president of the Council of Social Agencies; died in the Municipal Tuberculosis Hospital October 6, aged 81, of bronchopneumonia and tuberculosis of the lungs.

**William B. Cochrane,** Rochester, N. Y.; University of Buffalo School of Medicine, 1896; member of the American Medical Association; at one time health officer of the town of Brighton; served on the staffs of Genesee Hospital and Park Avenue Hospital, where he died October 21, aged 76, of arteriosclerotic heart disease.

**J. Thomas Coghlan,** Rochester, N. Y.; St. Louis College of Physicians and Surgeons, 1927; served during World War I; died October 25, aged 52, of coronary occlusion.

**Charles Joseph Cooney,** Oelwein, Iowa; State University of Iowa College of Medicine, Iowa City, 1895; formerly health officer; on the staff of Mercy Hospital; died October 11, aged 75, of arteriosclerosis and bronchopneumonia.

**Robert Fulton Elvington,** Lake View, S. C.; Medical College of the State of South Carolina, Charleston, 1912; member of the American Medical Association; died October 5, aged 62, of heart disease.

**Walter Rudolph Evans,** Jackson, Ohio; Starling Medical College, Columbus, 1896; past president of the Jackson County Medical Society; formerly county coroner; died in Holzer Hospital, Gallipolis, recently, aged 75, of carcinoma of the prostate.

**James Farrage,** Corona, Calif.; University of Southern California School of Medicine, Los Angeles, 1934; member of the American Medical Association; died October 4, aged 48, of heart disease.

**Jesse Rideout Grimes,** Dumont, N. J.; Harvard Medical School, Boston, 1899; served during World War I; for many years president of the board of health and school physician; affiliated with Holy Name Hospital, Teaneck, and the Englewood (N. J.) Hospital; director of Dumont Savings & Loan Association; died October 29, aged 73, of coronary disease.

**Charles Cotton Harrold,** Macon, Ga.; Columbia University College of Physicians and Surgeons, New York, 1902; member of the American Medical Association; fellow of the American College of Surgeons and the American Association for the Advancement of Science; past president of the Chattahoochee Valley Medical and Surgical Association; served overseas during World War I; affiliated with the Middle Georgia Sanatorium and the Macon City Hospital; director of Citizens and Southern National Bank; died October 11, aged 70, of coronary disease.

**Leo Eugene Hayes,** Richmond, Va.; Medical College of Virginia, Richmond, 1927; served during World War II; died in Phoenix, Ariz., recently, aged 53, of heart disease.

**Wiley De Barr Hickey** ⊕ Leipsic, Ohio.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1900; past president of the Northwestern Ohio Medical Association and the Putnam County (Ohio) Medical Society; veteran of the Spanish American War and World War I; formerly mayor of Leipsic; served on the staffs of Memorial and St. Rita's hospitals in Lima; died in Kutztown, Pa., recently, aged 73, of coronary thrombosis.

**George Howard Jantzen,** Brooklyn; Long Island College of Medicine, Brooklyn, 1947; intern at the Kings County Hospital, where he died recently, aged 25, of Landry's disease.

**James Johnston** ⊕ Los Angeles; M.B., University of Toronto Faculty of Medicine, 1884; M.D., Trinity Medical College, Toronto, 1884; an Affiliate Fellow of the American Medical Association; for many years a major-surgeon of the Sixteenth Regiment, Pennsylvania National Guard; served during the Spanish-American War; affiliated with the Hollywood Hospital; died in the Veterans Administration Hospital, West Los Angeles, October 27, aged 85, of arteriosclerosis.

**Marvin Lamb** ⊕ Jacksonville, Texas; Baylor University College of Medicine, Dallas, 1935; past president of the Cherokee County Medical Society; died recently, aged 43, of pneumonia.

**Louise Doddridge Larimore** ⊕ Greenwich, Conn.; Woman's Medical College of Pennsylvania, Philadelphia, 1915; specialist certified by the American Board of Pathology, Inc.; member of the American Society of Clinical Pathologists; for many years pathologist at the Greenwich Hospital; died recently, aged 59.

**Max Lehman** ⊕ Glendale, N. Y.; Cornell University Medical College, New York, 1907; for many years examining physician for the Prudential Life Insurance Company; formerly on the staff of Bushwick Hospital in Brooklyn; died in Bethany Deaconess Hospital in Brooklyn, October 16, aged 68, of injuries received in a fall.

**George Clenon Overstreet** ⊕ Lakeland, Fla.; Emory University School of Medicine, Atlanta, 1917; served an internship and residency at the Detroit Receiving Hospital; member of the Southern Medical Association and the American Association of Industrial Physicians and Surgeons; affiliated with the Morrell Memorial Hospital, where he served as superintendent; died in the Tampa Municipal Hospital, in Tampa, September 14, aged 55, of subarachnoid hemorrhage.

**Frederick D. Reardon,** Bowling Green, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1900; University and Bellevue Hospital Medical College, New York, 1901; past president of the Warren County Medical Society and of the Third District Medical Society; medical examiner for Warren County during World Wars I and II; died in the Pewee Valley Sanitarium and Hospital in Pewee Valley, September 27, aged 71.

**Charles Henry Slosson,** Youngstown, Ohio; Homeopathic Hospital College, Cleveland, 1888; died in Cleveland September 30, aged 82, of carcinoma.

**H. Brooks Smith** ⊕ Bluffton, Ind.; Indiana University School of Medicine, Indianapolis, 1932; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; served an internship and residency at Indianapolis City Hospital; associated with the Cayler-Nickel Clinic; died October 18, aged 40, of malignant hypertension.

**Melvin Albert Vogtel,** Minneapolis; Rush Medical College, Chicago, 1916; died in Asbury Hospital recently, aged 56, of cerebral hemorrhage.

**Frances Theodosia McDonald Wallace,** Pittsburgh; University of Wooster Medical Department, Cleveland, 1896; for many years a member of the staff of Presbyterian Hospital, where she was a member of the board of trustees for many years; served a four year term on the board of trustees of the State Hospital; died October 1, aged 84, of arteriosclerotic heart disease.

**Hugh Herbert Williams Sr.,** Sparta, Wis.; Rush Medical College, Chicago, 1896; member of the American Medical Association; veteran of the Spanish-American War; health officer and police and fire commissioner; affiliated with St. Mary's Hospital; died in Minneapolis October 7, aged 79, of coronary thrombosis.

**Frederic John Woodhead** ⊕ Waukesha, Wis.; Milwaukee Medical College, 1906; served during World War I; a member of the original board of directors of the Waukesha Memorial Hospital; died recently, aged 68, of carcinoma.

**Julius Francis Zielinski** ⊕ Rochester, N. Y.; University of Buffalo School of Medicine, 1929; on the staff of St. Mary's Hospital; died suddenly October 13, aged 42.

# Foreign Letters

## LONDON

*(From Our Regular Correspondent)*

Nov. 13, 1948.

### The Troubles of the National Health Service

From all over the country comes the cry of doctors' offices overcrowded by persons, many of whom have little or nothing the matter, seeking medical advice. What may happen if we have a winter epidemic of some kind is a nightmare for the physician. The demands for drugs and apparatus is excessive. For the first three months of the service the national bill for eye testing and spectacles amounted to nearly $4,000,000, for drugs $7,600,000 and for dentists, including dentures, $4,900,000. These figures do not include the cost of treatment and appliances provided through the hospitals.

A much greater fall than was anticipated has taken place in private practice, both general and special. Persons who were expected to continue as private patients have taken advantage of the free National Health Service. The Minister of Health, Mr. Bevan, congratulated himself on the number of persons of the middle class who were using the service, and said that for them a doctor's bill was often an expense that they could not afford. But he omitted to say that a great cause of their trouble was the confiscatory taxation continued since the war by the Labor Government.

An abuse of the Health Service has occurred the extent of which cannot be stated because of the secrecy of the practice. A woman obtains a prescription from a doctor for which she has little if any need. Perhaps she shams illness. She takes the prescription to a pharmacist and trades the prescription for cosmetics or other things which he sells. The pharmacist has no difficulty in getting payment for the prescription, as he returns it with those that he has dispensed. Both score over this fraud. The woman obtains her cosmetics for nothing and the pharmacist probably makes an increased profit on this sale of cosmetics.

### The Rush for Spectacles

The opportunity of "something for nothing" has produced a rush for spectacles under the National Health Service. This is so great that the time for an appointment with an optician to the issue of spectacles is at best about four weeks and at worst three months. The delay is mainly due to a shortage of lenses. There is also a shortage of skilled workers and of machinery for grinding. Before the period of the National Health Service the output of spectacles amounted to between 4,000,000 and 5,000,000 a year. The ophthalmic industry now places the demands at nearly 8,000,000 a year. The cost will amount to about $80,000,000 a year. It is believed that 40 per cent of the population will require some aid to vision.

### Treatment of Pulmonary Tuberculosis with Streptomycin

A committee appointed two years ago by the Medical Research Council to plan clinical trials of streptomycin in pulmonary tuberculosis has presented the most important report on this subject ever made in this country. The work was done by clinicians and pathologists in various hospitals, and comparison was carefully made with controls. Only once before has a drug been submitted to controlled trial in this unpredictable disease. This was in 1931, when the gold treatment was found to be unsuccessful. The present trial was restricted to persons aged 15 to 30 years with acute progressive tuberculosis of both lungs unsuitable for collapse therapy, a form hitherto treated only by rest in bed. Such cases are not common, but a trial of streptomycin was made at 7 centers in 55 cases, while in 52 similar cases the patients were treated by rest in bed alone. All the patients were kept in bed on the same general regimen, but the former group received 2 Gm. of streptomycin daily by intramuscular injection, usually for four months. The results were assessed after six months. By then 4 of the streptomycin-treated patients and 14 of the controls had died, a difference which would not have occurred by chance once in one hundred times. Considerable improvement was observed in 27 (51 per cent) of the patients treated with streptomycin, but in only 4 (8 per cent) of the controls. The probability of occurrence of such a difference by chance is less than 1 in 1,000,000. At the end of a year 12 streptomycin-treated patients and 24 controls were dead, and the percentage improved had risen to 31 in the controls, while in the streptomycin cases it remained much the same, 56. Toxic effects of streptomycin were never severe enough to necessitate cessation of treatment, though giddiness, nausea and vomiting were common.

The conclusion drawn is that streptomycin can be of great value in acute phthisis, especially in early cases before cavities have formed. But it is not a "cure" for pulmonary tuberculosis. In these trials no patient was freed from infection. Nor does it render other treatment obsolete. It must be used with discrimination. Under the treatment the ordinary streptomycin-sensitive tubercle bacillus is rapidly replaced by a resistant bacillus. This means that the drug may be effective only once during an illness, and the time to give it must be carefully chosen. For the community there is the danger that unsuccessfully treated patients may disseminate streptomycin-resistant bacilli to others, producing many cases which would not respond to treatment with streptomycin.

### New Institute for the Postgraduate Study of Ophthalmology

The Institute of Ophthalmology has been formed by the amalgamation of the three London ophthalmic schools—Moorfields, Westminster and the Central Eye Hospital. The institute has been opened as one of the federated institutes of the British Postgraduate Federation of London University. The amalgamation affords a wider scope for teaching and research. A rearrangement of the hospitals' joint facilities has freed for the use of the institute the buildings formerly used by the Central Eye Hospital. The amalgamated hospital is stated to be the largest eye hospital in the world. At the opening ceremony addresses were given by Sir John Herbert Parsons, Prof. Alan Woods, director of the Wilmer Institute, Baltimore, and Prof. H. J. M. Weve, head of the eye institute, Utrecht. The two latter conveyed the good wishes of American and European ophthalmologists. Postgraduate students will come to the institute from all over the world, as they did to its famous predecessors.

## THE NETHERLANDS

*(From Our Regular Correspondent)*

AMSTERDAM, Nov. 15, 1948.

### Jongbloed's Mechanical Heart

In the beginning of 1948 Dr. J. Jongbloed, Professor of Physiology in Utrecht (Netherlands) published a paper in the *Nederlandsch Tijdschrift voor Geneeskunde* (92:1065, 1948) about his work on the mechanical heart and lung. The function of the artificial heart is to replace the organic heart temporarily. The surgical treatment of the heart might improve considerably if it were possible to empty the heart of blood completely or nearly so. As technically it is practically impossible to insert the pulmonary circulation into a mechanical heart system, the use of an artificial heart involves the use of an artificial lung. The whole device might also be used in lung operations, and also in cases of temporary dysfunction of the heart (diphtheria) or the lungs (pneumonia, etc.). The author believes that it is desirable to maintain the circulation in the whole subject, not just in the brain, because it is not sure that the tissue not perfused will not be damaged, if for any reason a longer use of the mechanical system would be necessary. In this method the heart and lungs are out of function, but their nutritive blood supply is intact, as well as that of the other parts of the organism. The continuance of the coronary circulation seems important for the heart muscle; this is a great advantage, with the disadvantage, however, that the coronary blood flow may cause difficulties during intracardial operations. For the rest it will not be impossible to overcome these difficulties.

In preliminary experiments Professor Jongbloed and his staff studied, in dogs with widely opened thorax, the behavior of heart and lungs when empty of blood for one or more hours during the artificial circulation. The results were satisfactory; both resume their normal functions immediately when the artificial device is stopped. In these experiments T shaped cannulas were inserted in the venae cavae and in the aorta; the venae cavae were clamped near the heart, so as to make sure that no blood enters the heart cavities from this side. The single branches of the T cannulas led to and from the artificial heart-lung system. By removing the clamps he could change over at will from the mechanical to the organic circulation, and vice versa.

In further experiments in dogs the procedure was as follows. A flexible catheter was inserted through the vena jugularis externa dextra into the vena cava superior and another through the vena femoralis dextra into the vena cava inferior. Further, a T cannula was brought into each arteria femoralis. By the right mechanical heart the blood is sucked from the venae cavae and pumped to the oxygenator. From here the left mechanical heart drives the oxygenated blood via the T cannulas in the arteriae femorales. Here the blood flows in the normal direction toward the hind limbs and in inverse direction toward the arcus aortae. The aortic branches are normally perfused, the coronary system included; the aortic valves remain constantly closed. The right mechanical heart must be adjusted by changing the stroke volume and frequency so that a maximum of blood is sucked from the venae cavae.

These experiments were very successful. They proved that it is possible to maintain a complete artificial circulation without the use of the animal's heart and lungs, and with only a small surgical procedure. During these experiments the spontaneous respiration of the animals could be totally obstructed without any sign of distress of the animal. If treated aseptically the dog survives and behaves quite normal.

On the basis of these promising experiments Jongbloed constructed a mechanical heart-lung system for future use in man. This apparatus functions semiautomatically, is reliable and has a capacity of more than 10 liters per minute. The oxygenator is of a rather new type; at a minute-volume of 4 liters the oxygen uptake is in the range of 240 cc. per minute; there is no hemolysis. With this new apparatus, the first in the world of the capacity necessary for use in man, a series of experiments is now in progress.

One is fully aware of the fact that many difficulties must still be overcome before the safe use in man is possible and that these experiments and this method and apparatus represent only the first steps on a difficult path. The necessary anticoagulant, for example, may give great trouble. To be absolutely sure that no blood from the venae cavae enters the heart cavities during a heart operation these vessels can be clamped and the blood from the coronary sinus has to be sucked away to clear the field. And so on.

But the first steps must first be taken if one wants to go a new way, and there is good hope that Professor Jongbloed's method and apparatus may prove to be a valuable contribution to the solution of the problem of artificial circulation in man.

## PARIS

*(From Our Regular Correspondent)*

Nov. 20, 1948.

### "Asiaticoside" Treatment in Leprosy, Experimental Tuberculosis and Lupus

P. Boiteau and R. Saracino have just published in the *Médecin Français* a preliminary note on the therapeutic effects of "asiaticoside." Boiteau, when director of the Tananarive Botanical Park, studied the plant Centella asiatica, the sap of which natives used with some success for combating leprosy. The Madagascar antileprosy service has carried on therapeutic trials, first with an extract of this plant and then with the purified substances. Grimes and other Tananarive doctors entrusted with the treatment of lepers with "asiaticoside" have seen an immediate improvement in patients not responsive to any other treatment, and, after a congestive period, disappearance of erythematous patches, softening and resorption of cutaneous and hypodermic leprous tubercles and regression of interstitial keratitis. When the posterior chamber was not involved, patients' vision frequently improved, or at least an important fraction of it. In neural leprosy, attenuation of neuritis and regression of anesthesia are seen. Hansen's bacillus disappears from the nasal mucus in the second week of treatment. All patients treated have been either cured or much improved; failures are the exception. According to these local practitioners, in patients with previous renal infections slight outbreaks of albuminuria and, rarely, hematuria may occur.

Encouraged by the effects of this product on leprosy, Boiteau and Ratsimamanga did research on experimental tuberculous infection in the guinea pig, which will be the subject of a further communication, but they report that in treated animals, even when they do not seem completely cured, only slight lesions are to be seen, whereas control animals show multiple nodular localizations and the viscera containing many tubercles. Later, Boiteau and Saracino began therapeutic tests with "oxy-asiaticoside," a product very soluble in water, prepared through oxydation of "asiaticoside" with permanganate. On account of the congestive effect noted at the beginning of the treatment with "asiaticoside," they have exempted pulmonary tuberculosis and used cases of lupus. Out of 8 patients under treatment, 6 have been improved and 2 are completely cured. The first recovery was in a woman 60 years of age who for twelve years had erythematous lupus of the face, with a large excavation of the nose. After exacerbation of the evolutive signs during the first three weeks, a regression became rapidly apparent; in less than two months recovery was complete; the recovery still persists after two months. The other case is of expanding and ulcerative erythematous lupus, lasting for fifteen years; the soft parts of the nose were destroyed, the upper lip and the right orbit ulcerated. The congestive effect became noticeable by the exacerbation of pain, but as soon as the ninth day epithelization set in and on the twenty-sixth day the lip was almost completely epithelized. In the course of the fifth week, two fresh ulcerations became apparent in the cicatricial tissue, which yielded to two weekly injections. Treatment is still continued, although the patient may be considered cured. No incident due to the treatment has been noted by the authors, no shock, albuminuria, hematuria or fever. Sometimes, they noted, within forty-eight hours after the injection, an impression of heaviness in the lower limbs and a slight fall of arterial pressure.

# Correspondence

## THE FARRIS TEST FOR OVULATION

*To the Editor:*—Dr. Edmond Farris has published a number of articles on his rat test for determining the time of ovulation. His latest paper appeared in The Journal, Oct. 23, 1948. The essence of these reports is that by noting the degree of hyperemia of the immature rat ovary after injection of the patient's urine the day of ovulation (hereafter referred to as Farris's day of ovulation, or FDO) can be determined. To prove the accuracy of his method he presents data on patients who were inseminated by coitus or artificially on the FDO and who conceived during that same menstrual cycle. This clinical test of his method would be quite acceptable but for one omission. Dr. Farris does not state that the insemination depicted in his charts was the only insemination in the cycle, or that insemination occurred only in a single twenty-four hour period at the FDO. The omission of this statement vitiates the experiment and destroys the logic by which his conclusions are reached. Dr. Farris states that "coitus is interdicted during each testing period," which I understand to be the ten days or so preceding the FDO. When the rat test indicates ovulation, insemination is advised, and conception occurs during the cycle as his data show. So far, so good. But Dr. Farris then discusses this insemination which he advised as if it were indubitably the cause of the conception, and he refers to the date of such insemination as "the day of conception." If coitus also occurred later in the cycle (and there is no indication that it did not also occur later) it might well have been the fertile mating rather than the insemination which Dr. Farris selects as proving his point. Since no clear statement is made in his articles to the effect that insemination occurred at FDO and at no other time in the cycle we must assume that such other inseminations did occur and that one of them might have been fruitful. If we make such an assumption, then we must discard from consideration the 18 cases in which conception followed coitus. Thus, of the 27 original cases there remain the 9 cases of artificial insemination. Five of these were by "homologous donors" which I take to be a new term for husbands. These men were fertile, for conception ensued. But did it result from artificial insemination on FDO or from coitus later in the cycle? Since there is no way of telling we are left with 4 cases to consider, the artificial inseminations by donors. To tabulate them:

| Case | Average Cycle | Insemination | Interval Between Insemination and Next Expected Menses | Comment |
|---|---|---|---|---|
| P. W. (fig. 1).......... | 25 days | day 11 | 14 days | A. I. one day after lowest temperature |
| H. Z. (fig. 4).......... | 27 days | day 13 | 14 days | Temp. incomplete |
| F. P. (fig. 4).......... | 28 days | day 13 | 15 days | Temp. incomplete |
| H. K. (fig. 6).......... | 27 days | day 12 | 15 days | Temp. incomplete |

It therefore appears that artificial insemination was performed at the usual time of ovulation, namely fourteen or fifteen days before the next expected period. In only 1 case was the temperature graph complete, and in this case insemination took place on the day following the lowest temperature reading. Of the 27 cases presented this is the sole case which is unassailable and in which it appears certain that insemination on FDO can be fairly correlated with the temperature graph.

The data which Dr. Farris has exhibited do not justify the conclusions that "At least 40 per cent of conceptions took place before there was any change in temperature" and "the use of basal body temperatures for detecting the time of ovulation may serve as an aid in the treatment of infertility in women in about 45 per cent of cases."

Pendleton Tompkins, M.D.,
San Francisco.

*To the Editor:*—Relative to the comments of Dr. Pendleton Tompkins, it may be stated that in the 23 complete cases of the 27 reported, 4 conceptions resulted from a single donor insemination on the day of prediction; 5 resulted from a single insemination with the husband's specimen on the day of prediction. Two of these had coitus later, but within eight hours of the insemination. In these 9 cases, no other intercourse occurred at any time during the cycle. Ten other conceptions resulted from coitus on the predicted day, as follows: 5 from isolated coitus which occurred once only, and at no other time in the cycle; 2 from coitus performed twice within ten hours and at no other time in the cycle, and 3 from coitus performed twice within the twenty-four hour period of the predicted day of ovulation. The 4 remaining persons had coitus on the predicted day of ovulation. In addition to the first coitus, patient J. H. had coitus one, two and nine days later; patient J. K. had coitus five, six, nine, and eleven days later; patient H. R. had coitus three days later, and patient M. B. had coitus three days later.

In summary, in 19 of the 23 complete cases insemination was artificial or by coitus within a twenty-four hour period of the predicted day of ovulation, and at no other time during the entire menstrual cycle.

E. J. Farris, Ph.D.
The Wistar Institute
Philadelphia.

## COLOMBIAN MEDICAL FEDERATION

*To the Editor:*—I have the pleasure of communicating to you that in the last General Assembly of the Colombian Medical Federation I was designated Secretary of Confederative Relations. On taking charge of the development of this function in the headquarters of the National Office of the Colombian Medical Federation, I wish to assure you of the sympathetic sentiments which Colombian physicians have for the American Medical Association, and to express to you our hope that your Association will continue to advance in your consideration and solution of medical problems which are common to all of us. At the same time, it is a pleasure to me to present through you a cordial salute to the American friends who have worked so much for the ideals of confederation.

This is also an opportune occasion to emphasize the spirit of cooperation and solidarity which Colombian physicians have in connection with the Pan-American Medical Confederation and with each one of the professional associations of the continent which it represents.

I have the honor to inform you that the last General Assembly of the Colombian Medical Federation named the following officers: Honorary President, Dr. Calixto Torres Umana; President, Dr. Alberto Garcia Maldonado; Vice Presidents in Charge of Scientific Matters, Dr. Jose A. Jacome Valderrama and Dr. Gonzalo Montes Duque; Secretaries of Miscellaneous Subjects, Dr. Rafael Peralta and Dr. Jorge Vergara Delgado; Secretaries of Propaganda, Dr. Francisco Geneco Mozo and Dr. Rafael Lopez Ruiz; Secretaries of Confederative Relations, Dr. Jorge Camacho Gamba and Dr. Jose MariaBaena Lavalle; Secretaries of the Treasury, Dr. Pedro C. Rojas Buitrago and Dr. Marco T. Perilla B.; Secretaries of Finance, Dr. Alfonso Tarazona and Dr. Jose Pablo Leyva; Procurator, Dr. Laurentino Munoz.

J. Camacho Gamba, M.D.
Secretary of Confederative Relations of the
Colombian Medical Federation, Bogota,
Colombia.

# Medical Economics

## THE AGES OF PHYSICIANS IN THE UNITED STATES, 1940 AND 1948

FRANK G. DICKINSON, Ph. D.
Director, Bureau of Medical Economic Research
Chicago

The number of living physicians by states was recently reported by this Bureau in The Journal (**137:**1550 [Aug. 21] 1948). The punch cards being developed by the Bureau's staff now permit an analysis of the age distribution of living physicians in the United States. Cards have not yet been punched for all June graduates of medical colleges and there is an unavoidable delay in reporting of deaths. These two facts should be kept in mind in any interpretations based on the following statistics.

The total number of physicians reported herein, 199,745, is slightly different from the 199,755 included in the previous report because of subsequent changes in the physician population. Approximately three fourths of all living physicians are in active practice.

Table 1 shows the age distribution of physicians as of July 1, 1948, for the United States based on our current punch card file and the corresponding figure for 1940 as analyzed by the United States Public Health Service from the 1940 Directory of the American Medical Association. Percentage figures are shown in table 1. The ages for only 0.7 per cent of the physicians in 1948 are unknown, whereas 1.4 per cent were unknown in 1940. Excluding the physicians of unknown age, the percentage of all physicians under 50 years of age rose from 57.5 in 1940 to 60.2 in 1948; in the age group 35 to 49 the percentage rose from 31.4 to 36.5. The percentage of all physicians of age 70 and over rose from 8.3 to 11.2. For all age groups except 35 to 49 and 70 and over the 1948 percentages are lower. At this time the Bureau records do not reveal the number of all physicians in each age group who are in active practice. Later tabulations by the Bureau will present the activity distributions by age groups.

Table 1.—*Age Distribution of Physicians in the United States, 1940 and 1948*

| Age Group | 1940 * |  | 1948 † |  |
|---|---|---|---|---|
|  | Number | Percent | Number | Percent |
| Under 30 | 20,069 | 11.4 | 21,571 | 10.8 |
| 30-34 | 25,027 | 14.3 | 25,442 | 12.7 |
| 35-39 | 20,829 | 11.9 | 27,058 | 13.6 |
| 40-44 | 17,744 | 10.5 | 25,549 | 12.8 |
| 45-49 | 15,691 | 9.0 | 19,835 | 9.9 |
| 50-54 | 15,661 | 8.9 | 16,738 | 8.4 |
| 55-59 | 15,568 | 8.9 | 14,467 | 7.2 |
| 60-64 | 15,514 | 8.8 | 13,436 | 6.7 |
| 65-69 | 12,211 | 7.0 | 12.143 | 6.1 |
| 70-74 | 7,810 | 4.5 | 10.505 | 5.3 |
| 75-79 | 3,822 | 2.2 | 6,780 | 3.4 |
| 80 and over | 2,719 | 1.6 | 4,863 | 2.4 |
| Unknown | 2,481 | 1.4 | 1,358 | 0.7 |
| Total | 175,146 | 100.0 | 199,745 | 100.0 |
| Mean age ‡ | 47.8 |  | 47.5 |  |
| Median age | 45.8 |  | 44.4 |  |

* From data tabulated for individual physicians listed in the 1940 American Medical Directory by statisticians of the United States Public Health Service.

† Tabulated from 3-card file.

‡ Assumed 28 for under 30 and 85 for 80 and over; unknown excluded.

Prior to 1940 there had been a steady increase in the number of physicians graduating from our medical schools. As a result the distribution by age has not become stabilized even in 1948. This probably explains the relatively high percentage now in the age groups 35 to 49 and the low percentage in the age groups 50 to 69. The increasing longevity enjoyed by the general population in the United States is shared equally by the physicians, as indicated by the large percentages in the age groups 70 and over. The speed-up program of medical training during World War II is reflected in the relatively high percentages in the 35 to 49 age group.

The mean age of all physicians of known ages in the United States in 1940 was 47.8 years; by 1948 it had dropped to 47.5 years. The aging of the medical population and the changes in the age distribution have not been sufficiently great in the interval from 1940 to 1948 to cause any decided change in the average age of living physicians. The median age dropped from 45.8 years in 1940 to 44.4 years in 1948, indicative of the increasing number of medical school graduates since 1940. The median is more accurate than the mean in 1940 because an approximate age had to be assumed for the "80 and over" and "under 30" classes in calculating the mean.[1]

Table 2.—*Number and Median Age of Living Physicians by States and for the United States, 1948*

| State | Number | Median Age | State | Number | Median Age |
|---|---|---|---|---|---|
| Alabama | 2,227 | 48.1 | New Hampshire | 729 | 44.9 |
| Arizona | 794 | 44.4 | New Jersey | 6,578 | 43.2 |
| Arkansas | 1,728 | 53.2 | New Mexico | 497 | 46.9 |
| California | 16,045 | 45.2 | New York | 30,981 | 43.8 |
| Colorado | 2,216 | 45.5 | North Carolina | 3,367 | 43.4 |
| Connecticut | 3,267 | 42.8 | North Dakota | 464 | 48.5 |
| Delaware | 440 | 43.6 | Ohio | 10,173 | 44.4 |
| Florida | 2,925 | 49.5 | Oklahoma | 2,245 | 50.9 |
| Georgia | 3,126 | 45.5 | Oregon | 1,813 | 44.2 |
| Idaho | 470 | 45.0 | Pennsylvania | 14,742 | 43.0 |
| Illinois | 13,320 | 46.2 | Rhode Island | 1,034 | 44.6 |
| Indiana | 4,404 | 45.5 | South Carolina | 1,519 | 45.9 |
| Iowa | 2,034 | 49.7 | South Dakota | 515 | 48.7 |
| Kansas | 2,206 | 46.6 | Tennessee | 3,255 | 44.8 |
| Kentucky | 2,662 | 48.7 | Texas | 7,868 | 45.4 |
| Louisiana | 3,080 | 38.7 | Utah | 845 | 40.5 |
| Maine | 997 | 49.8 | Vermont | 583 | 43.3 |
| Maryland | 3,715 | 40.3 | Virginia | 3,333 | 44.5 |
| Massachusetts | 9,078 | 42.9 | Washington | 2,774 | 43.2 |
| Michigan | 7,173 | 43.8 | West Virginia | 1,834 | 47.7 |
| Minnesota | 4,290 | 41.0 | Wisconsin | 3,870 | 44.8 |
| Mississippi | 1,507 | 52.9 | Wyoming | 253 | 46.5 |
| Missouri | 5,345 | 47.5 | District of Columbia | 4,118 | 41.7 |
| Montana | 539 | 46.1 | United States | 199,745 | 44.4 |
| Nebraska | 1,066 | 49.3 |  |  |  |
| Nevada | 201 | 49.3 |  |  |  |

Detailed age distributions for each state are not presented herein. The available supply of medical service cannot be measured by crude numbers of living physicians, since they include interns and residents still in training and physicians not engaged in the active practice of medicine due to retirement and special appointments such as teaching, administration, government service and research. An adequate inventory of medical service must also include an evaluation of the contributions of the large force of technicians and medical assistants who enable the modern physician to render far more medical service than was possible only a decade ago.

The state is too large an area for measuring the available medical service personnel. For example, in Utah the heavy concentration of population, hospital and training facilities and physicians in the area of Salt Lake City modifies state figures to an amazing degree and distorts the picture for those living in the large rural areas distant from this important metropolitan center. This accurate analysis of medical service must await the completion of the medical service area study now being made by the Bureau. At that time the punch card records will be sufficiently complete to furnish meaningful data on the age characteristics of the physician supply for areas of proper size in relation to the medical trading habits of the population. There are, of course, many interesting variations in the age distributions of the physicians in different sections of the United States which will be presented by the Bureau in studies now in process and in others being planned.

Subject to the limitations stated, certain interesting facts about the distribution of physicians by states are given in table 2, which shows the number and median age of living physicians in each state. Probably the median ages of physicians in the several states would exhibit a much more uniform pattern if interns, residents and physicians who are not in active practice were excluded. We are led to this conjecture by the observation that the higher median ages generally are observed in the sparsely populated states. The lower median ages occur in those states where there are a large number of medical schools and hospitals and, consequently, a large number of young physicians holding internships and residencies; this situation occurs primarily in metropolitan areas.

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[1] Ages 28 and 85 were assumed to be the mid points of the two open-end classes, below age 30 and 80 and over for the 1940 data. The 1948 data were available for each year and no mid points were assumed.

### CONCLUSIONS

The average age of all living physicians in the United States in 1948 is slightly lower than in 1940. The percentages under 50 and over 70 years of age have increased. On the whole the typical American physician is slightly younger today than was the typical pre-World War II physician. These facts reflect the relatively rapid increase in the number of physicians since 1940. The medical population has increased 14 per cent, while the total population increased only 12 per cent. Each new physician is destined to remain in the medical population approximately forty years.

# Bureau of Legal Medicine and Legislation

## MEDICOLEGAL ABSTRACTS

**Workmen's Compensation Acts: Ruptured Intervertebral Disk from Repeated Trauma During Employment.**—The plaintiff filed a claim for compensation for total and permanent disability due to an accident suffered during the course of his employment. From a judgment denying his claim, the plaintiff appealed to the court of appeal of Louisiana.

The plaintiff alleged that he was employed by the defendant to work in its manufacturing plant and that while so employed he suffered a severe injury to his back, that he was accidentally injured while engaged in moving heavy alloy hoppers, which was a part of the duties of his employment, and that while pulling and straining and moving said hoppers he suffered the damage to the lower region of his back which resulted in the rupture of an intervertebral disk, which necessitated a major fusion operation. He further alleged that at the time of the accident he considered that he had suffered only a strained back and, for this reason, did not immediately complain to his employer but continued working in an attempt to perform the duties required of him, thereby suffering increasing pain and disability; that within a few days thereafter his back became so painful that he was required to take a sick leave for several weeks, and that, at this time, he reported to the first aid station maintained by his employer on the premises and told the employees there of this back condition; that he remained away from the job for a period of about twelve weeks and was placed in traction and given other treatment by Dr. Anderson and other physicians in New Orleans and Baton Rouge; that within a few weeks following the accident, he reported his condition to Dr. Beam, the regularly retained physician of the defendant, but that he did not make any claim for compensation at that time as he did not understand the nature and extent of his injury and did not know what the prognosis of his condition would be, and, in the meantime, he was receiving his full salary. Both the counsel for the plaintiff and for the defendant agreed that the trial judge dismissed the plaintiff's suit for the reason that he had failed to prove an accident arising out of and within the scope of his employment. The main question, therefore, was whether or not it was necessary for the plaintiff to show a single accident or act of trauma that could have caused the ruptured disk. The plaintiff contended that the testimony in the case conclusively showed that the injury was caused by a series of strains or repeated injuries which were due to the nature of the duties he was required to perform for the defendant.

The facts disclosed that the plaintiff was employed by the defendant in 1940 and that he remained in this employment until September 1945, during which time he did rather heavy manual work. He experienced no difficulty in performing his duties until approximately the middle of 1944 when, while pulling a hopper and putting a hydraulic jack under a hopper, a hot flash went down his right leg and it seemed as though his hip had jumped out of place. He said he was unable to walk for a few minutes. From that time until he terminated his employment in 1945, the plaintiff was under the care of about twelve or more physicians and was in and out of a number of hospitals many times. He underwent many infra-red ray treatments to the lower part of his back. He also underwent heat treatments and wore various braces. In August of 1945 he visited the Ochsner Clinic, where his difficulty was finally diagnosed as a ruptured intervertebral disk and in October of 1945 the disk between the fourth and fifth lumbar vertebrae was removed and a lumbar fusion operation performed. The plaintiff introduced the testimony of seven fellow employees and of a number of physicians who treated him at various times during 1944 and 1945.

After reciting and considering the evidence received in the case, the court of appeal concluded that it was established by the medical testimony that one performing labor such as the plaintiff performed for the defendant, and one having a congenital abnormality such as the plaintiff had, is more susceptible to trauma and, as a result, a ruptured disk than one whose labors are light or one who performs no manual labor at all. The doctors, continued the court, were also in accord that a ruptured disk could be caused by the ordinary performance of such duties as the plaintiff was required to do on various jobs he held while employed by the defendant, that is, that a ruptured disk could come about by repeated minor or small strains or trauma over a length of time. Clearly, said the court, as the plaintiff failed to establish a single strain or accident, his case must then of necessity rest on proof of repeated minor injuries or repeated trauma as a cause for the ruptured disk, which, the court concluded, we believe he has proved. "The testimony convinces us that he suffered a ruptured disk while at work for defendant." Accordingly, the judgment of the trial court denying the plaintiff's compensation was reversed.—*York v. E. I. duPont de Nemours & Co., 37 So. (2d) 68 (La., 1948).*

**Paternity: Variations from Normal Period of Gestation.**—The plaintiff sued for divorce on the ground that the defendant was pregnant at the time of their marriage by an act of intercourse with a person other than the plaintiff, that such fact was concealed from the plaintiff and that the marriage was therefore procured by fraud. From a judgment of the trial court refusing to grant a divorce, the plaintiff appealed to the superior court of Pennsylvania.

Under Pennsylvania law, said the superior court, fraud is a ground for divorce, but the plaintiff has the usual burden of proving his case by clear and satisfactory evidence, and unless there is a preponderance of the evidence in his favor the divorce must be refused.

The parties first met on Oct. 31, 1945, and were married on December 21, having been in each other's company once or twice a week in the meantime. A child was born to the defendant on July 31, 1946, two hundred and twenty-two days after the marriage, but she denied that she was pregnant at the time of the marriage, denied that she had ever had intercourse with any man other than the plaintiff and insisted that the plaintiff is the father of the child.

The plaintiff introduced no evidence to show the defendant's association with any other men, but relied on the statements of two doctors who testified as expert witnesses. One of these doctors, who saw the baby four days after its birth, testified that the normal period of gestation is from 270 to 280 days and that in his opinion the birth in question was a normal birth and the period of gestation normal. The other expert witness who testified on behalf of the plaintiff had never seen the baby but based his testimony on its case history. He testified that according to the description of the baby, its weight, its reactions after born and the care which was used at the hospital, it was his opinion that the baby was a full term baby and that it could not have been conceived after the marriage on Dec. 21, 1945.

The defendant, on the other hand, introduced testimony of the physician who had given her prenatal attention and delivered the child. He testified that he had made internal examinations of the defendant on April 2, April 25, May 23, "some date in June" and on July 25, six days before the birth of the child. In his opinion the defendant had been pregnant three months on April 2 when he first examined her. He was then asked, "Can you definitely say as a practicing physician, in the line of prenatal history and examinations of the patient and the examinations of the baby, that this was not a full term baby?" His answer was, "I would like to emphasize in the light of all three matters, that this was not a full term child in the light of prenatal examination and history of the case and the examination of the baby." He further testified that the "usual period of gestation of a full term baby" is "ten lunar months, nine calendar months or two hundred and eighty days" and "I could not tell and no one could tell whether it was a full term child or not from examination of the baby"; and a "non-full-term baby" can be a normal baby, as this appeared to be.

The court said that the qualifications of the three doctors who appeared as witnesses were not questioned but that the testimony of the doctor who attended the defendant for many months prior to the birth of the child and delivered it was entitled to far more weight than the purely expert opinion testimony of the others. On the basis of all the evidence the court was of the opinion that the plaintiff had not met the burden of proof entitling him to a divorce. Accordingly, the judgment refusing the divorce was affirmed.—*Kissell v. Kissell, 60 A. (2d) 834 (Pa., 1948).*

# Medical Examinations and Licensure

## COMING EXAMINATIONS AND MEETINGS

### NATIONAL BOARD OF MEDICAL EXAMINERS

**National Board of Medical Examiners:** *Parts I & II.* Various Centers, Feb., June and Sept. 1949. *Part II.* April, 1949. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2, Pa.

### EXAMINING BOARDS IN SPECIALTIES

**American Board of Anesthesiology, Inc.:** *Written.* July 15. Various locations. Final date for filing application is April 15. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Avenue, New York 27.

**American Board of Internal Medicine:** *Oral.* San Francisco, Feb. 8-10, 1949. New York City, March 23-25. Final date for filing application is Jan. 2. Philadelphia, June 1-3. Final date for filing application is Jan. 2. *Written.* Oct. 17, 1949. Final date for filing application is May 1. Asst. Sec.-Treas., Dr. W. A. Werrell, 1 W. Main St., Madison 3, Wis.

**American Board of Neurological Surgery:** *Oral.* Chicago, June 1949. Final date for filing application is Jan. 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

**American Board of Ophthalmology:** *Written.* Jan. 14. *Oral.* San Francisco, March 21-24; New York, June 11-15; St. Louis, Oct. 15-19; Boston, Dec. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

**American Board of Obstetrics and Gynecology, Inc.:** *Oral.* Chicago, May 8-14. Final date for filing application is April 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

**American Board of Orthopedic Surgery:** *Part I.* Various Centers, April and May. Final date for filing application is Dec. 31. Sec., Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

**American Board of Otolaryngology:** New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

**American Board of Pathology:** Boston, April. Final date for filing application is March 1. Sec., Dr. Robert A. Moore, 507 S. Euclid Ave., St. Louis 10, Mo.

**American Board of Pediatrics:** *Oral.* St. Louis, Feb. 18-20. Baltimore, May 7-9. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

**American Board of Physical Medicine:** Atlantic City, June 4-5. Final date for filing application is March 15. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

**American Board of Plastic Surgery:** Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

**American Board of Psychiatry and Neurology:** *Oral.* May. Final date for filing application is Feb. 15. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

**American Board of Surgery:** *Written.* Various Centers, March 1949. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

**American Board of Urology:** Feb. 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

### BOARDS OF MEDICAL EXAMINERS

**Alabama:** *Examination.* Montgomery, June 28-30, 1949. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

**Alaska:*** Juneau, March 1. Sec.-Treas., Dr. W. M. Whitehead, Box 140, Juneau.

**Arkansas:*** Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 2-3. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

**Colorado:*** Denver, Jan. 4-7. Final date for filing application is Dec. 18. Sec.-Treas., Dr. W. W. King, 831 Republic Bldg., Denver 2.

**Connecticut:*** Hartford, March 8-9. Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

**Delaware:** *Examination.* Dover, Jan. 11-13. *Endorsement.* Jan. 20. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

**Georgia:** *Examination.* June, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

**Guam:** *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam, % F.P.O. San Francisco, Calif.

**Hawaii:** *Examination.* Honolulu, Jan. 10-13. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu 53.

**Idaho:** Boise, Jan. 10-12. Dir., Bureau of Occupational Licenses, Miss Estella S. Mulliner, State House, Boise.

**Illinois:** Chicago, Jan. 11-13. Superintendent of Registration, Mr. Fred W. Ruegg, State House, Springfield.

**Indiana:** *Examination.* Indianapolis, June. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

**Maine:** Portland, March 8-9. Sec., Dr. Adam P. Leighton, 192 State Street, Portland.

**Massachusetts:** *Examination.* Boston, March 8-11. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

**Minnesota:*** Minneapolis, Jan. 18-20. Sec., Dr. J. F. DuBois, 230 Lowry Medical Arts Building, St. Paul.

**Montana:** Helena, April 4-6. Sec., Dr. O. G. Klein, First National Bank Building, Helena.

**Nebraska:*** *Examination.* Omaha, June. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

**Nevada:** Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

**New Hampshire:** Concord, March 10. Sec., Board of Registration in Medicine, Dr. John S. Wheeler, 107 State House, Concord.

**New Jersey:** *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

**New Mexico:** Santa Fe, April 11-12. Sec., Dr. V. E. Berchtold, 141 Palace Ave., Santa Fe.

**New York:** *Examination.* Various Centers, Feb. 1-4. Sec., Dr. J. L. Lochner, Jr., 23 S. Pearl St., Education Bldg., Albany.

**North Carolina:** *Endorsement.* Raleigh, Jan. 17. Sec., Dr. Ivan M. Procter, 226 Hillsboro St., Raleigh.

**North Dakota:** *Examination.* Grand Forks, Jan. 4-7. Act. Sec., Dr. C. J. Glaspel, Grafton.

**Oregon:*** *Examination.* Jan. 5-7. *Endorsement.* Jan. 21-22. Final date for filing application is Jan. 3. Exec. Sec., Mr. Howard I. Bobbitt, 608 Failing Bldg., Portland.

**Pennsylvania:** *Examination.* Philadelphia, Jan., 1949. Act. Sec., Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

**Puerto Rico:** *Examination.* Santurce, March 1. Sec., Mr. Luis Cueto Coll, Box 3717, Santurce.

**Rhode Island:*** *Examination.* Providence, Jan. 6-7. Chief, Mr. Thomas B. Casey, 366 State Office Building, Providence.

**South Dakota:*** Pierre, Jan. 18-19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

**Texas:** *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

**Utah:** *Examination.* Salt Lake City, July. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

**Vermont:** *Examination.* Burlington, Feb. 3-5. Sec., Dr. F. J. Lawliss, Richford.

**Washington:*** Seattle, Jan. Sec., Dept. of Licenses, Miss Virginia Wotherspoon, Olympia.

**West Virginia:** Charleston, Jan. 3-5. Sec., Public Health Council, Dr. N. H. Dyer, Capitol Bldg., Charleston 5.

**Wisconsin:*** Madison, Jan. 11-13, 1949. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls, Wis.

**Wyoming:** *Examination.* Cheyenne, Feb. 7. Sec., Dr. Franklin D. Yoder, Cheyenne.

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* Basic Science Certificate required.

### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

**Alaska:** Juneau, Feb. 21-26. Sec.-Treas., Dr. C. Earl Albrecht, Box 1931, Juneau.

**Connecticut:** New Haven, Feb. 12. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

**District of Columbia:** *Examination.* Washington, April 18-19. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., East, Washington.

**Florida:** *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

**Iowa:** *Examination.* Des Moines, Jan. 11. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

**Michigan:** *Examination.* Ann Arbor & Detroit, Jan. 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.

**Minnesota:** *Examination.* Jan. 4-5, April, June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

**Oklahoma:** Spring of 1949. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

**Rhode Island:** *Examination.* Providence, Feb. 9. Chief, Mr. Thomas B. Casey, 366 State Office Building, Providence.

**Washington:** Seattle, Jan. Sec., Dept. of Licenses, Miss Virginia Wotherspoon, Olympia.

**Wisconsin:** Madison, April 2. Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College, Ripon.

# Current Medical Literature

## AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

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Doses of Histamine Producing Minimal and Maximal Gastric Secretory Responses in Dog and Man. M. E. Hanson, M. I. Grossman and A. C. Ivy.—p. 242.

Effect of Resection of Mesenteric Lymph Nodes on Intestinal Fat Absorption in Dog. B. G. Clarke, A. C. Ivy and D. Goodman. —p. 264.

Absorption of Blood from Peritoneal Cavity of Dog. G. S. Samuelsen, G. E. Griffin, E. Muntwyler and S. Seifter.—p. 277.

Some Factors in Regulation of Stroke Volume. W. F. Hamilton and J. W. Remington.—p. 287.

Volume Elasticity Characteristics of Human Aorta and Prediction of Stroke Volume from Pressure Pulse. J. W. Remington, C. R. Noback, W. F. Hamilton and J. J. Gold.—p. 298.

Comparison of Fick and Dye Injection Methods of Measuring the Cardiac Output in Man. W. F. Hamilton, R. L. Riley, A. M. Attyah and others.—p. 309.

Measurement of Circulating Red Cell Volume with Methemoglobin-Tagged Cells. J. C. Moore, O. W. Shadle and H. C. Lawson.—p. 322.

Pressor Substances in Dog Plasma Incubated with Renin. E. Tripp and E. Ogden.—p. 336.

Enzymatic Conversion of Cyanide to Thiocyanate. W. A. Himwich and J. P. Saunders.—p. 348.

Effects of Anticholinesterases on Direct and Indirect Stimulation of Striated Muscle. C. R. Lowe and R. Gesell.—p. 355.

Distribution of Potassium and Sodium Between Serum and Certain Extracellular Fluids in Man. B. P. Folk, K. L. Zierler and J. L. Lilienthal Jr.—p. 381.

### American Journal of Psychiatry, New York

**104:**753-832 (June) 1948

Role of Motivation in Recovery from Illness. P. R. Hawley.—p. 753.

Evaluation of "Sexual Behavior in Human Male." A. H. Hobbs and R. D. Lambert—p. 758.

Cerebral Blood Flow and Metabolism in Schizophrenia: Effects of Barbiturate Semi-Narcosis, Insulin Coma and Electroshock. S. S. Kety, R. B. Woodford, M. H. Harmel and others.—p. 765.

Schizophrenic Syndromes as Frustration Reactions. J. M. Neilsen and G. N. Thompson.—p. 771.

Cerebrospinal Fluid Studies in Advanced Dementia Praecox. C. E. Johnson Jr. and Georgia L. A. Johnson.—p. 778.

Follow-Up Report on Series of Posttraumatic Epileptics. A. E. Walker and F. A. Quadfasel.—p. 781.

*Group Psychotherapy as Adjunct Treatment of Epileptic Patients: Preliminary Report. A. L. Deutsch and J. Zimmerman.—p. 783.

Prediction of Huntington's Chorea: Electroencephalographic and Genetic Study. R. M. Patterson, B. K. Bagchi and A. Test.—p. 786.

Bromide Psychoses: Four Varieties. M. Levin.—p. 798.

Hospital Treatment of Involutional Psychoses. D. M. Hamilton and Gladys M. Ward.—p. 801.

**Group Psychotherapy in Epileptic Patients.**—Deutsch and Zimmerman report a plan for the rehabilitation of veterans with convulsive disorders. As part of this program, they introduced the group psychotherapeutic approach. The patients were divided into units of 20. The first half of the first three sessions was devoted to orientation of the patient. The material discussed included history and definition of epilepsy, causes of epilepsy, various types of seizures encountered, the modern treatment, the hereditary factors associated with the disease and the question of marriage of epileptic persons. The second half-hour was devoted to a discussion with the authors as mediators. Further sessions were taken over by representatives from the Vocational Rehabilitation Section, who advised the group as to the various occupational skills and aptitudes which were necessary in future employment. Further meetings were held with members of the patients' families so that they could learn how they could cooperate in relieving the anxieties and tensions resulting from family overconcern. Members of industry and various employment agencies were invited to discuss employability of the epileptic person and attitude of the employer toward the disease. The authors found that after this group therapy the patients were able to view their problems more objectively. They had less fear, anxiety and insecurity. They no longer felt that they were freaks, since there were others similarly afflicted. They were more reassured as to the possibilities of education and training. As the family was brought into the discussion, many of the patients' anxieties and concern in relation to the family were reduced. Employers were willing to work with the group.

### Annals of Surgery, Philadelphia

**128:**1-160 (July) 1948

*Results Following Subtotal Gastrectomy for Duodenal and Gastric Ulcer. F. B. St. John, H. D. Harvey, J. M. Ferrer and R. W. Sengstaken. —p. 3.

Problem of Peptic Ulcer Following Pancreatectomy. F. M. Owens Jr. —p. 15.

Experimental Repair of Common Duct Defects Utilizing Free Vein Graft over Blakemore-Lord Tubes. P. C. Shea Jr. and C. A. Hubay. —p. 21.

Conservative Therapy of Residual Calculi Following Operations on Common Bile Duct: Report of 2 Cases. G. H. Amsterdam and J. A. Sterling.—p. 30.

Blood Fat Levels Following Supradiaphragmatic Ligation of Thoracic Duct. J. L. Ehrenhaft and R. Meyers.—p. 38.

Streptomycin in Surgical Infections: Part V. Infections of Soft Tissues. E. J. Pulaski, F. W. Spicer Jr. and M. J. Johnson.—p. 46.

*Penicillin in Postoperative Treatment of Peptic Ulcer with Perforation and Appendicitis with Perforation. R. B. Brown and L. A. Andrus. —p. 57.

Resurfacing Procedures in Compound Injuries of Lower Extremities. M. L. Lewin.—p. 66.

Urologic Complications of Left Colon Surgery. C. G. Bandler and P. R. Roen.—p. 80.

Sacrococcygeal Teratomata in Infancy: Report of Six Cases. W. Riker and W. J. Potts.—p. 89.

Temporary Interruption of Sympathetic Impulses to Head by Infiltration of Cervical Sympathetic Trunk. H. D. Kirgis and A. F. Reed. —p. 101.

On Use of N. Musculocutaneous for Neurotization of N. Radialis in Cases of Very Large Defects of the Latter. A. S. Lurje.—p. 110.

Use of Mechanically Wound Bobbins for Handling and Dispensing Non-Absorbable Suture Material, with Observations on Tensile Strength and Sterility of Mechanically Wound Suture Material. J. F. O'Neill, L. Shaffner and H. H. Bradshaw.—p. 116.

Carcinoid Tumors of Rectum: Report of 3 Cases, 2 with Metastases. C. Pearson and P. J. Fitzgerald.—p. 128.

Morbidity and Mortality in Talc Granuloma: Report of Fatal Case. A. J. Swingle.—p. 144.

Unusual Complication of Meckelian Diverticulum. C. G. Morlock and J. G. Bennett.—p. 153.

**Follow-Up After Subtotal Gastrectomy for Ulcer.**—During the decade 1936 to 1945, inclusive, 394 partial gastric resections were performed for peptic ulcer at the Presbyterian Hospital in New York. In analyzing the results St. John and his associates gained the impression that there are less immediate postoperative difficulties after the Hofmeister type of resection than after the Polya type. An effort was made in nearly every resection to remove two thirds or more of the stomach. The value of this report lies in the completeness of the record of what has happened to the patients after they have left the hospital. Over 80 per cent of the follow-up records are based on personal interviews, the remainder being the result of communication with patients who could not be reached for interview. Results were satisfactory in 336 of the cases; they were unsatisfactory in 37. There were 18 postoperative deaths, and in 3 cases the available data were unsatisfactory. Few of the patients with results called satisfactory were restricted in their diets; most of them smoked, and many indulged in alcohol. Their life and occupation were not interrupted by recurrence of ulcer symptoms. For persons under age 45, resection is a relatively safe procedure, the hospital postoperative mortality being about 1 per cent. In view of the high percentage of excellent results and the low mortality, and in view of the absence of studies based on long follow-ups in cases in which vagus resection has been performed, the authors lack the evidence to justify younger patients with ulcer to have vagus section performed. It is difficult to dictate the form of therapy that should be used in persons of the older age group whose ulcer is in the duodenum and in whom carcinoma is almost surely absent. If these patients bleed, their risk of death is relatively higher than in the younger age group. If their symptoms are intractable under a medical regimen, as they often are, one must consider either a different form of medical therapy or surgery. Whereas psychic factors undoubtedly play an important role in relation to ulcers, they have not interfered seriously in many cases in this series with the benefits of surgical treatment. Not a few patients who gave the impression of being psychoneurotic before operation lost this characteristic after being free of their pain or bleeding.

**Penicillin in Postoperative Treatment of Perforated Peptic Ulcer and Appendix.**—Brown and Andrus report on 42 cases of perforated peptic ulcers and 97 cases of perforated appendixes operated on at the Philadelphia Naval Hospital between Jan. 1, 1946, and June 30, 1947. Patients from the Veterans Administration and active duty personnel are included in the series. Since the vast majority of these cases were surgical emergencies, operation was performed by the surgical watch officer, usually a younger surgeon with experience comparable to that of a surgical resident. There was no rigid standardization of surgical procedure, but the postoperative treatment was rather uniform. With few exceptions penicillin was administered postoperatively; 100,000 units every two hours became the accepted initial postoperative dose. Penicillin was maintained at this dosage level for days or even weeks in those cases in which the slightest indication for continuation of therapy persisted. In a group of 42 ruptured ulcers there were 2 deaths, a mortality rate of 4.8 per cent. There were 97 perforated appendixes in a total series of 815 appendectomies. There was 1 death, a mortality rate of 1 per cent for the ruptured appendixes and 0.12 per cent for the entire group.

## Archives of Ophthalmology, Chicago

### 39:261-450 (March) 1948

Experimental Studies of Ocular Tuberculosis: IX. Failure of Penicillin to Affect the Course of Experimental Ocular Tuberculosis. J. D. Kennedy, A. C. Woods, J. Buckley and others.—p. 261.
Spasm of Macular Arteries: Report of Case. Sie-Boen-Lian.—p. 267.
*Pathogenesis of Myopia: New Classification. F. C. Stansbury.—p. 273.
Cranial Epidermoid with Erosion of Roof of Orbit: Report of Case. Isadore Givner and H. Wigderson.—p. 300.
Normal Optic Nerve: I. Classification of Optic Disk Based on Branching of Central Retinal Artery. E. H. Wood.—p. 305.
Effect of Roentgen Therapy on Experimental Ocular Vaccinia in Nonimmune and in Partially Immune Rabbits. G. T. Harrell, C. H. Reid, J. M. Little and others.—p. 313.
Distance Discrimination: III. Effect of Rod Width on Threshold. M. J. Hirsch, M. W. Horowitz and F. W. Weymouth.—p. 325.
Id.: IV. Effect of Aniseikonic Lenses on Distance Discrimination. M. J. Hirsch, M. W. Horowitz, E. L. Walker and F. W. Weymouth. —p. 333.
*Results of Surgical Treatment of Congenital Cataract. W. C. Owens and W. F. Hughes Jr.—p. 339.
Effect of Prism on Corneal Light Reflex. E. Krimsky.—p. 351.
Ligament of Lockwood in Relation to Surgery of Inferior Oblique and Inferior Rectus Muscles. W. H. Fink.—p. 371.

**Pathogenesis of Myopia.**—Stansbury is of the opinion that the diversity and number of etiologic theories of the pathogenesis of myopia indicate that the problem has never been satisfactorily solved. It is difficult to account for the proposal of so many mechanical hypotheses, considering the extent of the possible pathologic changes in the myopic fundus. The author believes that too much emphasis has been placed on the element of axial elongation and that the other pathologic factors have been practically disregarded. He arrives at the conclusion that axial elongation of the eye beyond normal limits is not necessary to myopia. Near work has never been shown to cause myopia, either in school or in adult occupations. There is no proof that overcrowding, poverty, poor health, inferior or superior mentality or bad ocular hygiene can cause myopia. No mechanical basis for myopia has ever been substantiated. There is no evidence that congenital deficiency of the sclera, disorder of growth, imbalance of the extraocular muscles, endocrine dysfunction, or avitaminoses plays any part in the causation of myopia. The author recommends that two types of myopia be differentiated: (1) primary, or physiologic, myopia, and (2) secondary, or pathologic, myopia. Primary myopia is, as far as is known, a biologic variation of refraction and a healthy one. It includes myopia of both high and low degrees, the great majority of cases being of the latter type. It is not possible to say whether the axial length or the refraction of the media is at fault. Secondary myopia is the result of disease of the coats of the eye. It should not be called myopia at all, but this term is used because of long-established custom and because the true cause is not known. The differential diagnosis of the two forms rests on the observation of pathologic changes in the fundus. The relation of other diseases to pathologic myopia has not been determined. It is possible that they play a part in the production of secondary myopia. It is suggested that a low grade chronic choroiditis is the primary lesion in secondary myopia. A classification of myopia is essential for progress in statistical and clinical research on this condition. Differential diagnosis of the two types is of great importance clinically, in therapy and in prognosis. It will prevent the waste of many useful citizens as "myopic cripples."

**Surgical Treatment of Congenital Cataract.**—Owens and Hughes review observations on 148 patients with congenital cataract. They analyze the results of operations performed on 231 eyes at the Wilmer Ophthalmologic Institute between January 1925 and October 1943. Gross associated ocular defects were present in 129 of 231 eyes with congenital cataract. The visual results in these eyes were significantly poorer than in the eyes without such gross ocular defects. The visual results for the patients on whom the operation was performed before 2½ years of age were poorer than for those operated on after this. The visual results were essentially the same whether the congenital cataract was complete or incomplete at the time of operation. Linear extraction or discission with subsequent linear extraction produced better visual results than simple discission in the patients with no associated ocular defects who were operated on after 2½ years of age. Operative and postoperative complications were as frequent in the eyes without associated ocular defects as in the eyes with associated ocular defects. The number of secondary operations necessary to clear the pupillary space was higher after simple discission than after linear extraction or discission with subsequent linear extraction. Complications occur with the same frequency after the extraction of senile as of congenital cataract. The poorer visual results after extraction of congenital cataract are attributed to associated ocular defects.

## California Medicine, San Francisco

### 69:89-178 (Aug.) 1948

Q Fever in Artesia, California. F. W. Young.—p. 89.
*Q Fever in California. E. H. Lennette.—p. 91.
Primary Carcinoma of Lung: Diagnosis by Cytologic Studies of Sputum and Bronchial Secretions. S. M. Farber, M. A. Benioff and G. Tobias. —p. 95.
Practical Principles of Psychotherapy for Non-Psychiatrically Trained Physician. E. Ziskind.—p. 100.
Pancreatic Lithiasis and Calcification: Study of 22 Cases in Series of 35,000 Necropsies. W. D. Bullock and H. A. Edmondson.—p. 104.
Pediatrician's Observations on Mental Hygiene. V. E. Stork.—p. 109.
Treatment of Cardiovascular Syphilis. O. A. Blomquist.—p. 111.
Intraocular Foreign Bodies in Naval Personnel. H. Lucic.—p. 114.
Environmental Survey in Diagnosis of Allergic Disorders. N. Shure. —p. 120.
Further Experiences with Pontocaine-Dextrose Ephedrine for Spinal Analgesia. A. J. Martinson and F. E. Leffingwell.—p. 123.
Inflammation as Considered by Radiologist. T. M. Fullenlove.—p. 127.
Laboratory Procedures in Diagnosis of Brucellosis. A. G. Bower and J. S. Chudnoff.—p. 131.
Influence of Mercurial Diuretics on Excretion of Sodium, Potassium and Chlorides. D. E. Griggs and V. J. Johns.—p. 133.

**Q Fever in California.**—Lennette states that a field laboratory has been established for the study of Q fever in California. The causal agent of Q fever is a rickettsia, which etiologically places this disease in the group to which belong epidemic and murine typhus, scrub typhus, Rocky Mountain spotted fever, boutonneuse fever and rickettsialpox. Morphologically and tinctorially, Rickettsia burneti resembles the other rickettsiae, but in other respects it differs from them. Thus, the organism is filtrable; it forms large microcolonies strikingly similar to those seen with psittacosis virus in infected cells in the mouse spleen; it produces no soluble antigen, nor does it produce agglutinins to the "X" strains of Bacillus proteus; also, the rash seen with other rickettsial diseases is absent in Q fever. Because of these characteristics which set off the Q fever organism from the other rickettsiae, it was proposed by Bengtson, Steinhaus and others that the organism be placed in a new genus to be known as Coxiella. The incubation period is from fourteen to thirty-two days. The symptoms in the early stages of Q fever are not different from those encountered in many other febrile conditions and afford no means of distinguishing this disease from others such as influenza, brucellosis, the enteric fevers and meningitis. Laboratory examinations provide no assistance. A definite diagnosis of Q fever is made by isolation of the rickettsia through inoculation of blood into guinea pigs or by showing that complement-fixing antibodies develop during the illness. For the serologic diagnosis of rickettsial and virus diseases, two specimens of blood, one taken in the early, acute stage of the illness and a second taken later in the convalescent phase, are required, since diagnosis depends on the demonstration of the appearance or rise in titer of specific antibodies. Therapy is entirely symptomatic and supportive.

## Canadian Medical Association Journal, Montreal

### 59:101-200 (Aug.) 1948

*Use of Combined Antigens in Immunization of Infants. D. S. Fleming, L. Greenberg and E. M. Beith.—p. 101.
*Streptomycin in Treatment of Tuberculosis: Report of Its Use in a Series of 100 Cases. G. F. Kincade, G. D. Saxton, P. W. Morse and A. K. Mathisen.—p. 105.
Unusual Hereditary Progression in 8 Cases of Friedreich's Ataxia. J. Saucier.—p. 112.
Neuro-Humoral Aspects of Peptic Ulcer Formation. J. Wener and H. E. Hoff.—p. 115.
Total Gastrectomy: Report of 11 Cases. F. Roy and J. Turcot.—p. 140.
Psychotherapy in Schizophrenia. D. S. Lindsay.—p. 142.
Intersexuality: Report of Case. D. D. Kulcsar.—p. 144.
Cell Smears in Diagnosis of Carcinoma. E. M. Robertson.—p. 148.
Horner's Syndrome Due to Osteochondroma of First Rib. J. F. Simpson.—p. 152.
Regional Anesthesia. J. J. Carroll and H. B. Graves.—p. 156.
Epidemic of Acute Lumbar Pain. A. Erdei.—p. 159.

**Combined Antigens in Immunization of Infants.**—Fleming and his associates tried to find answers to the following questions: 1. Must immunizing preparations be given individually, or can they be combined in order to reduce the number of inoculations? 2. Will a mixing of materials adversely affect the immunizing properties of the individual components? 3. Is the reaction produced by a mixture likely to be more severe? The authors present observations on infants observed at the Child Welfare Association of Montreal. The average age of the infants was 4 months. It was found that the response to diphtheria toxoid is substantially enhanced when it is given in combination with pertussis vaccine or with pertussis vaccine and tetanus toxoid. The immunizing efficiency of pertussis vaccine is not appreciably affected by its use in mixtures containing diphtheria and tetanus toxoids. Satisfactory immunization with tetanus toxoid can be achieved when it is combined with diphtheria toxoid and pertussis vaccine. Severity of reaction following inoculation was not increased by the use of mixtures of antigens. Public acceptance of active immunization for infants will be increased if mixtures of antigens can be used.

**Streptomycin in Tuberculosis.**—Kincade and his associates review observations on 100 patients with various forms of tuberculosis who were treated with streptomycin. At first the dosage of streptomycin was 3 Gm. daily given in divided doses every three hours. This was later reduced to 2 Gm. and since Nov. 1, 1947 has been 1 Gm. daily, divided in two doses and carried on for eight weeks. The results with the higher dosage and frequent injections were not found to be superior to the present course of 1 Gm. daily. The patients have been followed for from two to ten months since the completion of the treatment. In a 2 year old boy with tuberculous meningitis a remission resulted after fifty-eight days of treatment with streptomycin, but six months later he showed signs of recurrence which again yielded to treatment with streptomycin. None of the other 6 patients with tuberculous meningitis are alive today. The authors feel that streptomycin is most successful in uncomplicated meningitis of children. Results are disappointing in adults with other tuberculous lesions, though life may be prolonged. In miliary tuberculosis it is most useful in the acute exudative type in which the antibacterial effect of streptomycin helps the patient's natural defensive processes to control the disease. When it is combined with ordinarily accepted forms of treatment some patients who formerly had a hopeless prognosis can be saved. It is also indicated to control fresh spread superimposed on chronic disease. But, since the suppressive effect of streptomycin is not permanent because of the development of bacterial resistance, administration should be timed to coincide with any surgical procedure contemplated. In chronic fibrocaseous tuberculosis unsuitable for surgery the use of streptomycin is justified only because of the symptomatic improvement which it produces. Streptomycin is definitely indicated in ulcerations of the larynx or bronchi. It is useful in the treatment of tuberculous sinuses, adenitis and gastrointestinal tuberculosis. In patients in whom streptomycin was used as an adjuvant to surgical treatment the results were most encouraging. By controlling acute spread it was possible to perform operative procedures on patients who could not have been treated surgically without streptomycin. In primary tuberculosis and in minimal lesions that can be controlled by other means streptomycin is not indicated.

## Cancer, New York

### 1:177-356 (July) 1948. Partial Index

*Complete Excision of Pelvic Viscera for Advanced Carcinoma: One-Stage Abdominoperineal Operation with End Colostomy and Bilateral Ureteral Implantation into Colon Above Colostomy. A. Brunschwig.—p. 177.
Papillary Adenomas of Large Intestine: Clinical and Morphologic Study of 48 Cases. D. A. Sunderland and G. E. Binkley.—p. 184.
Diagnosis of Bronchogenic Carcinoma by Smears of Bronchoscopic Aspirations. D. G. McKay, P. F. Ware, D. A. Atwood and D. E. Harken.—p. 208.
Cytologic Studies of Sputum and Bronchial Secretions in Diagnosis of Cancer of Lung. A. A. Liebow, G. E. Lindskog and W. E. Bloomer.—p. 223.
Bronchogenic Carcinoma: Comparison of Two Consecutive Series of 100 Cases Each. G. E. Lindskog and W. E. Bloomer.—p. 234.
Obscure Axillary Lymph-Node Metastasis in Carcinoma of Breast. O. Saphir and G. D. Amromin.—p. 238.
Sympathetic Ganglioneuroma Cultivated in Vitro. Margaret R. Murray and A. P. Stout.—p. 242.
Histochemical Studies on Abnormal Growth of Human Endometrium: I. Alkaline Phosphatase in Hyperplasia and Adenocarcinoma. W. B. Atkinson and S. B. Gusberg.—p. 248.
Distribution of Radioactivity in Mouse Following Administration of Diabenzan-Thracene Labeled in 9 and 10 Positions with Carbon 14. C. Heidelberger and H. B. Jones.—p. 252.
Roentgenographic Appearance of Renal Cancer Metastasis in Bone. R. S. Sherman and T. A. Pearson.—p. 276.
Glandlike Elements in Peripheral Neurosarcoma. A. G. Foraker.—p. 286.

**Excision of Pelvic Viscera for Advanced Carcinoma.**—Brunschwig presents an operation devised for the total excision of all pelvic viscera, en masse, for advanced carcinoma. One diagram shows levels of transection of ureters and of pelvic colon; another shows conditions at end of operation, indicating the area from which peritoneum has been stripped as well as pelvic viscera removed. The peritoneal stripping has extended above the level of the common and external iliac vessels. The midline colostomy is shown. Both ureters have been implanted into the colon a short distance above the colostomy. The operation was performed on patients with the most advanced stages of pelvic cancer—a procedure of desperation since all other attempts to control the disease had failed. Because of the advanced stage of their disease, it is not to be anticipated that many, if any, of these patients will survive for prolonged periods. Two patients among those who have survived, did experience periods of relief and return to almost normal existence, but then developed metastases and succumbed. Varying degrees of palliation have been attained, for which reason the procedure is deemed justified. The author summarizes the status, as of April 10, 1948, of 22 patients who underwent total excision of the pelvic viscera. None of the patients died during the operation, but 5 died during the postoperative period after an average of eight days. Thus the surgical mortality is less than 25 per cent. The operation demonstrates the extent to which modern preoperative and postoperative supportive treatment permits extensive surgery; that a colostomy with both ureters implanted into the colon above is a feasible procedure and affords a situation compatible with normal physical activity, and that complete deperitonealization of the pelvis may be carried out and the small intestines permitted to descend into it without subsequent development of intestinal obstruction.

## Georgia Medical Association Journal, Atlanta

### 37:289-328 (Aug.) 1948

*Management of Residual Common Duct Stones. D. Shepard.—p. 289.
Surgery of Thyroid: Review of Cases. C. H. Richardson and C. H. Richardson Jr.—p. 293.
Early Ambulation in Major Abdominal Surgery. I. L. Greenberg.—p. 298.
Embolectomy from Bifurcation of Aorta: Case Report. T. C. Davison and A. H. Letton.—p. 303.
Care of Lungs During Pregnancy. A. W. Hobby.—p. 304.
Role of General Practitioner, General Surgeon, and Specialists—Where do We Go from Here? J. M. Barnett.—p. 313.

**Common Duct Stones.**—Shepard says that other investigators have found choledocholithiasis in 13 to 20 per cent of all patients harboring gallstones and nearly 1 in every 4 persons with cholelithiasis has at necropsy been found to harbor a stone in the common bile duct. As more explorations of the common bile duct are undertaken more choledocholithiasis is revealed, but there is an inevitable higher incidence of residual common duct stone. Postoperative cholangiography should be used routinely before removal of the common duct drain, as lack of symptoms with the drainage system clamped is an unreliable index of presence or absence of residual stone. If residual common duct stones are found on cholangiography, the more conservative nonsurgical methods of removal should be tried. Irrigation of the common duct drain with solution, the instillation of 1:500 dibucaine hydrochloride solution and perhaps Best and Hickens' regimen may be tried. This consists of the use of antispasmodics, magnesium sulfate and olive oil by mouth, and T tube irrigation with isotonic sodium chloride solution followed by instillation of olive oil into the T tube in conjunction with large doses of bile salts orally. If nonsurgical measures fail to remove the stone, secondary choledochotomy and mechanical removal are necessary.

## Journal of Aviation Medicine, St. Paul

### 19:221-304 (Aug.) 1948

Minnesota Multiphasic Personality Inventory: Differentiation of Psychologically Good and Poor Combat Risks Among Flying Personnel. L. S. Jennings.—p. 222.
Simulated High Altitude Following Whole-Body Radiation of Mice. W. W. Smith, R. Dooley and E. C. Thompson.—p. 227.
Study of Methods of Intentionally Crashing Aircraft with Purpose Toward Survival of Personnel. H. R. Bierman.—p. 238.
Effects of Decompression: 70 Subjects Repeatedly Exposed to Simulated Altitude of 20,000 Feet During Approximately One Month. H. A. Smedal and A. Graybiel.—p. 253.
Sunburn as Cause of Temporary Lowering of Blackout Threshold in Flyers. A. Graybiel, J. L. Patterson Jr and J. M. Packard.—p. 270.
*Ruptured Intervertebral Disk from Positive Acceleration. R. S. Shaw.—p. 276.
Comprehensive Graph for Collection of Noise and Vibration Data. S. Lippert.—p. 279.
Practical Testing and Treating of Aircraft Drinking Water. F. H. Shillito and M. K. Peetz.—p. 287.
*Methylene Blue, an Antidote to Altitude Sickness. M. M. Brooks.—p. 298.

**Ruptured Intervertebral Disk from Acceleration.**—Shaw presents 2 instances of back injury appearing after exposure to positive acceleration. The first is a case of ruptured intervertebral disk proved at operation. The second, although not a proved case, presents the syndrome typical of ruptured disk. These cases have in common an awkward, flexed position of the back during a "pull-out." This is probably the reason that these men suffered injury from accelerations ordinarily considered well below the tolerance limit for back injury. Under positive acceleration this flexion would increase and result in severe strain on the posterior longitudinal ligament and its adjacent annulus fibrosis. At the same time the nucleus pulposus would be compressed and forced against these strained posterior supports. The likelihood of posterior herniation of the nucleus pulposus is great in these circumstances. The author stresses that it is advisable to maintain an erect spine during exposure to positive acceleration whether in curvilinear flight or in the ejection seat.

**Methylene Blue in Altitude Sickness.**—In the experiments described by Brooks the method used was to go by auto from about sea level at Lima to Morococho at 14,900 feet (4,542 meters), via La Cima at 15,600 feet (4,775 meters), in approximately four hours. At Morococho lunch was served, and after an hour or more the descent to sea level was again made. Twelve volunteers were taken for the first excursion without reference to any tests. Of these, 6 were given a capsule of charcoal as a control, and 6 were given a capsule containing 0.05 Gm. of methylene blue. Half of each group became ill irrespective of treatment, and the conclusion that a larger dose of methylene blue was indicated was tested in the next experiment. In the second excursion only those who had been ill were selected. They were given a capsule containing 0.2 Gm. of methylene blue before retiring at night and again 0.2 Gm. before ascending the mountains. This dose proved to be effective, as none became ill. There were two more trips of six subjects each, in which this dose of methylene blue was given to each of the fresh recruits, resulting in the absence of symptoms in each case. Methylene blue speeds up the rate of combination of hydrogen with oxygen, thus compensating for the reduction in oxygen pressure found at high altitudes.

## Journal of Immunology, Baltimore

### 59:331-410 (Aug.) 1948

Action of Urea and Some of Its Derivatives on Bacteria: VIII: Antibacterial Activity of Hexyl Carbamate, Alone and in Combination with Sulfonamides, and Its Effect on Para-Aminobenzoic Acid. L. Weinstein.—p. 331.
Donovania Granulomatis: Cultivation, Antigen Preparation, and Immunologic Tests. A. D. Dulaney, K. Guo and H. Packer.—p. 335.
Immunologic Studies of Cholera Filtrates. E. Singer, S. H. Wei and S. H. Hoa.—p. 341.
Studies on Lymphogranuloma Venereum Complement-Fixing Antigens: IV. Fractionation with Organic Solvents of Antigens of Psittacosis-Lymphogranuloma Venereum Group. M. R. Hilleman and Clara Nigg.—p. 349.
Inhibitory Effects of Certain Avian and Mammalian Antisera in Specific Complement-Fixation Systems. Christine E. Rice.—p. 365.
Therapy of Experimental Brucella Infection in Developing Chick Embryo. W. H. Hall and W. W. Spink.—p. 379.

## Journal of Infectious Diseases, Chicago

### 83:1-100 (July-Aug.) 1948. Partial Index

Streptococcal Hyaluronic Acid and Hyaluronidase. R. M. Pike.—p. 1.
Radioiron in Ducks and Canaries and Its Effects on Initial Malarial Infections. P. E. Thompson, D. A. McGinty and M. L. Wilson.—p. 23.
Oxidative Metabolism of Trypanosoma Lewisi in Phosphate-Saline Medium. J. W. Moulder.—p. 33.
Changes in Glucose Metabolism of Trypanosoma Lewisi During Course of Infection in Rat. J. W. Moulder.—p. 42.
Relationship Between Ascorbic Acid and Phagocytic Activity. W. J. Nungester and A. M. Ames.—p. 50.
Antigenic Relationship of Brucella and Vibrio Comma. N. B. McCullough, C. W. Eisele and Grace A. Beal.—p. 55.
Studies with Shigella Dysenteriae (Shiga). S. E. Branham and S. A. Carlin.—p. 60.
Relationship of Biologic Defense Mechanisms to Antiobiotic Activity of Penicillin. I. Modifying Influence of Penicillin on Pattern of Pneumococcic Infection and Immune Response in Protein-Depleted Rat. O. K. Skinsnes and R. L. Woolridge.—p. 78.
Bone Marrow and Its Leukocytic Response in Protein Deficiency. M. Asirvadham.—p. 87.

## Journal of Nutrition, Philadelphia

### 36:187-330 (Aug.) 1948. Partial Index

*Improving Nutritive Value of Flour: II. Further Studies on Effect of Supplementing Enriched Flour with B-Complex Vitamins and Some Observations on Use of 80 Per Cent Extraction Flour. Beulah D. Westerman and Frances Templeton.—p. 187.
Relation of Ascorbic Acid Metabolism in Rat to Diets High in Protein, Carbohydrate or Fat. L. T. Samuels.—p. 205.
Need for and Interrelationship of Folic Acid, Anti-Pernicious Anemia Liver Extract, and Biotin in the Pig. T. J. Cunha, R. W. Colby, L. K. Bustad and J. F. Bone.—p. 215.
Effect of Enzymatic Hydrolysis on Nutritive Value of Casein. B. F. Chow, J. B. Allison and J. White.—p. 231.
Brain Excitability in Pyridoxine-Deficient Rats. Virginia D. Davenport and H. W. Davenport.—p. 263.
Cataracts Due to Deficiencies of Phenylalanine and of Histidine in Rat. A Comparison with Other Types of Cataracts. W. K. Hall, L. L. Bowles, V. P. Sydenstricker and H. L. Schmidt Jr.—p. 277.
Vitamin Studies in Middle-Aged and Old Individuals: I. The Vitamin A, Total Carotene and Alpha + Beta Carotene Concentrations in Plasma. E. Kirk and Margaret Chieffi.—p. 315.

**Nutritive Value of Flour.**—Westerman and Templeton conducted experiments on albino rats to determine the effect on growth, maintenance, reproduction and length of life of the use of whole wheat, enriched flour, enriched flour supplemented with other B complex vitamins and 80 per cent extraction flour in the diets. It was found that the whole wheat and the enriched flour did not support normal growth and reproduction in the rats when included in the diet as sources of the B complex vitamins, at either the 40 or 60 per cent level. The enriched flour in the diet at these levels promoted better growth than the whole wheat. The enriched flour supplemented further with the B vitamins supported better growth, maintenance, reproduction and length of life than the enriched flour alone. The addition of choline, pyridoxine and riboflavin to the enriched flour resulted in greater weight gains than the addition of choline and pyridoxine. When choline, pyridoxine and calcium pantothenate were added even better growth was obtained. The animals with additional riboflavin or calcium pantothenate in the diet lived long and showed fewer deficiency symptoms than those on the diet of enriched flour with only choline and pyridoxine added. Animals on diets with choline, pyridoxine, calcium pantothenate and riboflavin added to the enriched flour, and these vitamins plus thiamine, made excellent growth records. None of the animals on the test diets reproduced so well as those on the stock diets. When 80 per cent extraction flour was enriched at the same levels as patent flour it supported slightly better growth than the enriched patent flour.

## Kansas Medical Society Journal, Topeka

**49:**321-360 (Aug.) 1948

Modern Surgery of Retinal Detachment. S. J. Meyer.—p. 321.
*Skin Cancer. G. M. Tice and C. M. White.—p. 324.
Prefrontal Lobotomy, Method of Treatment for Chronic Mental Illness. B. H. Hall and L. L. Bernstein.—p. 333.
Ruptured Ectopic Pregnancy Complicating Normal Intra-Uterine Pregnancy. J. Tiller.—p. 335.

**Skin Cancer.**—This report by Tice and White is based on a study of 358 cases of cancer treated at the University of Kansas Hospital from 1933 to 1945. The lesion was verified by biopsy. The chief etiologic factor of skin cancer seems to be chronic irritation such as contact with coal tar products, actinic rays, inclemencies of the weather and uncleanliness. That excessive exposure to actinic rays plays a part in the causation of skin cancer is proved by the higher incidence of skin cancer in the Southern states. In Fort Worth and Dallas 46 per cent of all cancer is primary in the skin; in Chicago 12.5 per cent is primary in the skin. The authors were impressed by the number of skin cancers in the blond men from the wheat fields of Kansas. There seems little doubt that actinic rays are an important factor. The 358 patients reviewed here had 363 skin cancers. Skin cancer may be cured by surgical methods, radium or roentgen rays, or by a combination of the three. A physician should use the method in which he is most proficient. The basal cell epithelioma showed a cure rate of 95.2 per cent and the squamous cell a cure rate of 79.7 per cent. The over-all cure rate was 90.5 per cent. The massive type of roentgen therapy not only is more effective than the fractionated type but also is more economical in time saved for both the patient and physician. Chronic radiation ulcer is the only significant complication of roentgen therapy. It occurred in 4.6 per cent of these cases and generally yielded easily to plastic repair.

## Minnesota Medicine, St. Paul

**31:**834-944 (Aug.) 1948

The New Look in Medicine. A. E. Cardle.—p. 857.
Practice of Medicine in Ramsey County. J. M. Culligan.—p. 862.
Brain Tumors in Children. L. A. French.—p. 867.
*Automatic Attentive Breathing in Angina Pectoris. A. Friedell.—p. 875.
*Early Ambulation: Clinical Results and Prerequisites. K. A. Meyer, D. D. Kozoll and N. Capos.—p. 882.

**Breathing in Angina Pectoris.**—Friedell relates that a patient told him of the relief he had obtained from a severe attack of angina pectoris when his attention was suddenly diverted to a bird singing on a treetop nearby. After that experience he found that he could abort an attack at will or shorten one by actively pretending that he was "listening to a bird sing on a treetop," providing he promptly stopped whatever he happened to be doing at the moment and turned his attention to his breathing, while he endeavored to keep himself at ease and relaxed. As he demonstrated it, his technic consisted in a slowed and protracted inhalation, with his chest expanding slowly during inhalation. His exhalation was slow also. The author encouraged this patient to continue this practice, although at first he did not comprehend its significance. Later, a search through the literature on respiration and an analysis of the physiologic factors involved in the act of "listening to a bird" convinced him that "attentive respiration" may be valuable exercise in some heart ailments. The author presents observations on 11 patients. After his patients mastered attentive breathing, it gradually became automatic with them, and they would automatically turn to those exercises at the first approach of any sign of distress. His only control was to keep each patient under observation for at least four weeks or more, on medication, rest and sedatives, before teaching the automatic attentive breathing exercises.

**Early Ambulation.**—Meyer and his associates studied, in relation to early or late ambulation, the postoperative complications of 500 surgical patients after the performance of one of five standard surgical procedures: gastric resection, colon resection, cholecystectomy, hysterectomy and herniorrhaphy. There was a total of 98 complications among 500 patients; 28 of the complications occurred among the 250 patients who became ambulatory early and 70 among the 250 who became ambulatory late. There was a total of 13 deaths (included in the 98 complications), of which all but 1 occurred in the group with prolonged bed rest. Pneumonia not only occurred more frequently in the late risers but also was more often fatal. Postoperative wound infections, thrombophlebitis and distention showed a definite decline with early ambulation, whereas pulmonary atelectasis and cystitis did not. A significantly shortened period of hospitalization was seen for each of the procedures when followed by early ambulation. Discussing the surgical prerequisites for early ambulation, the authors point out that transverse incisions are to be preferred to vertical incisions in patients in whom early ambulation is contemplated. The reason for this is that the transverse incision has a lower incidence of evisceration, nerve destruction and herniation. The use of interrupted sutures is also important in the program of early ambulation, since the lines of tension are more equally distributed. The use of interrupted sutures is of more importance than the type of suture used. It is also advisable to inform patients before operation that they are to become ambulatory early. The use of spinal anesthesia is preferable, because it makes the patient more cooperative. Contraindications to early ambulation include shock, hemorrhage, generalized peritonitis, intestinal obstruction, wound evisceration or extensive wound infection, toxic states, cardiovascular complications, extreme debility and severe anemia.

## New England Journal of Medicine, Boston

**239:**283-316 (Aug. 19) 1948

Country Doctor on the Maine Coast. M. E. Chase.—p. 283.
*Serum Concentrations of Penicillin Following Administration of Crystalline Procaine Penicillin G in Oil. W. L. Hewitt, P. Whittlesey and C. S. Keefer.—p. 286.
Paroxysmal Hypertension in Spinal-Cord Injuries. C. E. Thompson and A. C. Witham.—p. 291.
Public Health Today and Tomorrow in Massachusetts. V. A. Getting.—p. 295.
Chemotherapy of Neoplastic Disease: III. Agents of Clinical Value. D. A. Karnofsky.—p. 299.
Carcinoma of Stomach, with Peritoneal Metastases: Small Bowel Obstruction.—p. 306.
Subacute Glomerulonephritis: Pulmonary Edema, with Massive Hemorrhage into Lungs.—p. 308.

**Serum Concentration of Penicillin.**—Hewitt and his co-workers present pharmacologic data concerning the use in man of crystalline procaine penicillin G suspended in oil. The following single intramuscular injections were employed: 1 cc. of procaine penicillin G in oil (300,000 units per cubic centimeter) and 2 cc. of procaine penicillin G in oil (300,000 units per cubic centimeter). Persons without evidence of impaired cardiac renal or hepatic function served as subject of the tests. The majority were women who had passed through labor or young men who recovered from acute illness. In a number of cases the preparations were employed in the treatment of various acute illnesses as the definitive form of therapy. It was found that the maximum serum penicillin concentrations obtained with procaine penicillin G in oil were distinctly lower than those following a similar dose of sodium penicillin G in peanut oil and beeswax. The concentrations following administration of the former preparation, particularly with a dose of 600,000 units, showed considerably more uniformity throughout the twenty-four hours following injection. A comparison of the serum penicillin concentrations obtained after a dose of 300,000 and 600,000 units of procaine penicillin G revealed the most characteristic difference to be a prolongation of a given effective penicillin level rather than an increase in the magnitude of the penicillin concentration during the early period after administration. Crystalline procaine penicillin G in oil was superior to crystalline sodium penicillin G in peanut oil and beeswax for maintaining an effective serum penicillin concentration for twenty-four hours after injection.

## New Orleans Medical and Surgical Journal

### **101:**47-96 (Aug.) 1948

Postrabies Vaccine Paralysis. S. Halle.—p. 47.
Necessary Personal Oral Hygiene for Prevention of Caries and Periodontoclasia. C. C. Bass.—p. 52.
*Diagnosis of Tuberculosis. H. L. Mantz.—p. 70.
Penicillin in Treatment of Peptic Ulcers by Continuous Gastric Drip. R. W. Young.—p. 75.
Some Data Pertinent to Diagnosis and Prognosis of Pulmonary Tuberculosis. P. B. Johnson and L. A. Monte.—p. 77.
Dermatomyositis: Report of Case. W. H. Browning.—p. 80.
Sympathetic Ophthalmia: Report of Case. W. W. Hart.—p. 85.

## Puerto Rico J. Pub. Health & Trop. Med., San Juan

### **23:**309-468 (March) 1948

Anthiomaline and Neostibosan in Treatment of Filariasis (Dirofilaria Immitis). Sophie C. Trent.—p. 311.
Studies on Murine Typhus in Puerto Rico. A. P. Lebrón.—p. 393.
Contamination by Air-borne Amoebae in Bacteriophage Typing. O. B. Soto.—p. 422.
Note on Bacteriologic Examination of Stomach Contents in Puerto Rico. F. H. Morales and Josefina Baralt.—p. 444.
Digestibility of Some Tropical Oils. C. F. Asenjo, J. A. Goyco and Ana R. F. de Guzmán.—p. 458.

## Surgery, St. Louis

### **24:**161-444 (Aug.) 1948. Partial Index

Postwar Trends in Training of General Surgeon. R. M. Zollinger.—p. 161.
Anal Ileostomy with Sphincter Preservation in Patients Requiring Total Colectomy for Benign Conditions. M. M. Ravitch.—p. 170.
*Polyposis (Adenomatosis) of Colon. P. I. Hoxworth and D. P. Slaughter.—p. 188.
Resection of Rectum and Rectosigmoid with Preservation of Sphincter for Benign Spastic Lesions Producing Megacolon: Experimental Study. O. Swenson and A. H. Bill Jr.—p. 212.
Role of Hypertrophy of Muscularis in Delayed Onset of Symptoms in Cancer of Colon. J. A. Gius.—p. 221.
*Indication for Emergency Operation in Severe Hemorrhage from Gastric or Duodenal Ulcer. J. E. Dunphy and S. O. Hoerr.—p. 231.
*Massive Hemorrhage from Gastroduodenal Ulcer. J. D. Stewart, A. J. Massover, W. H. Potter and S. M. Schaer.—p. 239.
Use of Roux Y in Extending Operability of Carcinoma of Stomach and of Lower End of Esophagus. J. T. Reynolds and J. P. Young.—p. 246.
Intrahepatic Cholangiojejunostomy with Partial Hepatectomy for Biliary Obstruction. W. P. Longmire Jr. and M. C. Sanford.—p. 264.
New Method for Surgical Treatment of Large Omphaloceles. R. E. Gross.—p. 277.
Hernia Problem, with Reference to Modification of McVay Technic. J. M. Farris, J. Ettinger and J. A. Weinberg.—p. 293.
Sympathetic Denervation of Extremities; Operative Technic, Morbidity and Mortality. H. B. Shumacker Jr.—p. 304.
Early Effect of Lumbodorsal Sympathectomy on Response to Insulin in Man. F. A. Simeone and H. Vavoudes.—p. 326.
Combined Cervical and Thoracic Approach for Resection of Large Arteriovenous Aneurysm. H. Wilson and D. Carr.—p. 342.
Practical Application of Heparin-Caronamide Reaction to Potentiation of Heparin in Gelatin Menstruum. R. S. McCleery, C. P. Artez and H. D. Sirak.—p. 348.
Experiences in Surgical Treatment of Pulmonary Stenosis. J. R. Paine and R. L. Varco.—p. 355.
Pulmonary Decortication in Treatment of Early Pyogenic Empyema. E. F. Parker and T. H. Burford.—p. 371.
Inhalation of Micropowdered Penicillin and Streptomycin in Prevention of Postoperative Pulmonary Infection. S. H. Cohen, G. V. Taplin and E. B. Mahoney.—p. 392.
Significance of Hemoptysis in Carcinoma of Thyroid Gland: Report of Four Cases. O. F. Grimes and H. G. Bell.—p. 401.

**Polyposis of Colon.**—Hoxworth and Slaughter point out that whereas polyps of the colon which occur singly or in small numbers are common, polyposis (adenomatosis) is relatively rare. The condition is of particular interest because of its familial and congenital aspects, the diffuse involvement of the colon and the tendency to malignant change at an early age. Seven new cases of polyposis are described, which bring to 35 the total reported in the American literature since 1930, in which attempts at surgical cure had progressed to the point of removal of portions of the large bowel. The only two methods resulting in cure were total ablation of the large bowel and external ileostomy, or total colectomy and ileosigmoidostomy (or ileoproctostomy) combined with fulguration of the lower segment. Total removal of the large bowel is the method of choice if there is evidence of carcinoma of the rectum or lower part of the sigmoid colon. Total removal might also be preferred if the rectum exhibits closely set polyps with hyperplasia, ulceration and secondary infection. The method which combines fulguration with surgical treatment was employed with considerable success in 17 of the 35 summarized cases. This method has been ruled out. The presence of cancer in nearly half of the cases indicates the close observation which must be accorded this segment if it is allowed to remain. The authors stress that early recognition of the disease and the increased amount of surgery that can be performed in one stage because of modern therapeutic adjuncts to intestinal surgery combine to give an improved prognosis in polyposis of the colon.

**Emergency Operation in Hemorrhage from Peptic Ulcers.**—Dunphy and Hoerr show that the availability of large quantities of blood for emergencies has influenced the treatment of severe hemorrhage of the upper part of the gastrointestinal tract and makes it desirable to reevaluate the place of emergency operation for this condition. The poor results of emergency surgery in the past, contrasted with the supposedly good results of nonsurgical management, have led to the belief that such cases are medical. The crux of the matter lies in the accuracy of the selection of patients for operation. The authors believe that the rate of bleeding is the decisive factor. If a stable circulation cannot be maintained with transfusions of 1,500 cc. of blood per twenty-four hours, spontaneous cessation of the hemorrhage is unlikely and emergency operation should be undertaken. Some patients with an exsanguinating hemorrhage are admitted in profound shock and respond slowly to transfusion, tending to revert into shock. If a patient is in shock on arrival at the hospital, or shows evidence of it while under treatment, he deserves the constant vigilance of a bedside team of internist and surgeon. If the hemorrhage does not seem to be controlled with blood transfusions of approximately 500 cc. every eight hours, an emergency operation is to be considered.

**Massive Hemorrhage from Gastroduodenal Ulcer.**—Stewart and his co-workers believe that the advantages of early surgical treatment of bleeding peptic ulcer deserve more serious consideration than in the past. Accordingly, since January 1947 an effort was made on their surgical service to evaluate a plan of management of acutely bleeding gastric and duodenal ulcers involving immediate blood replacement and early subtotal gastric resection. The study is still in progress. By early surgical treatment is meant gastric resection with removal of at least 80 per cent of the stomach within twenty-four hours of admission to the hospital. The only patients with acute massive hemorrhage into the upper part of the gastrointestinal tract not operated on are those refusing operation, those presenting evidence of primary blood disease with clotting defect or those with evidence of cirrhosis of the liver with esophageal varices. In case of doubt as to the source of bleeding, exploratory laparotomy is performed. Determination of blood volume and extracellular fluid volume is done within one-half hour after the patient is admitted to the hospital, and massive blood transfusion is started immediately afterward. Operation is carried out during the course of blood replacement. Thirty patients have been studied under the program just outlined. In 19 instances operation was performed, and in 11 instances nonoperative management was carried out, as the patients either refused operation or died of hemorrhage before operation could be started. In 2 of the 19 patients operated on other lesions were found, in one instance esophageal varices and in the other carcinomatous ulcer at the cardiac end of the stomach.

Only exploratory laparotomy was performed in these, and both patients made uneventful convalescence from the operation. The experiences to date suggest that the surgical treatment affords a better prognosis than nonsurgical management.

## Virginia Medical Monthly, Richmond

**75:**379-434 (Aug.) 1948

*Role of Ammonium Chloride and Other Acid Producing Substances in Treatment of Congestive Heart Failure. A. J. Crutchfield Jr. and J. E. Wood Jr.—p. 381.

Tic Douloureux: Review of 200 Cases Treated by Surgery. C. C. Coleman, J. M. Meredith and C. E. Troland.—p. 386.

*Streptomycin in Treatment of Draining Tuberculous Sinuses. W. L. Nalls and R. E. Moyer.—p. 389.

Clinical Significance of RH Factor. W. C. Winn.—p. 393.

Hemolytic Anemia in Newborn. E. L. Kendig Jr.—p. 395.

*Sulfadiazine in Treatment of Meningococcic Meningitis: Study of Sixty Cases Without Death. S. G. Page Jr. and M. Jane Page.—p. 397.

Practical Application of Unipolar Leads in Clinical Electrocardiography. R. R. Porter and N. Bloom.—p. 403.

Protruded Cervical Intervertebral Disk Simulating Heart Disease. C. L. Gossels.—p. 408.

Treatment of Bronchial Asthma. K. D. Graves.—p. 411.

Nutritional Management of Nephrotic Syndrome. H. Y. Spence and L. E. Sutton.—p. 413.

Physical Medicine in General Practice. W. E. Malin.—p. 416.

Nail Changes Following Application of Nail Preparation. A. Pepple and R. W. Fowlkes.—p. 418.

Basal Cell Epithelioma: Some Valuable Pointers Gained in Successful Treatment of 300 Cases by X-ray Radiation. G. H. Carr Sr.—p. 420.

Diabetes Insipidus. A. B. Grubb.—p. 422.

**Acid-Producing Substances in Congestive Heart Failure.**—According to Crutchfield and Wood, intermittent administration of acid-producing substances seems to be theoretically and practically more effective for inducing diuresis than their continuous administration. Apparent synergism between these substances and mercury or xanthine diuretics may be related to the combination of two influences, both acting primarily to increase renal sodium elimination. One must pay proper regard to the relative state of cardiac competency, to renal function, hepatic function when ammonium salts are to be used, and the state of extracellulary fluid and its electrolyte content before using acid-producing substances. The usual dosage is 8 to 12 Gm. of ammonium chloride in divided doses daily, four days out of each week. This provides 5.3 to 7.9 Gm. of chloride ion. The normal kidney can produce ammonia sufficient to cover 16 Gm. of chloride daily. This dosage combined with a basic ash diet containing more fruits and vegetables serves to provide a surplus of acid irons to the patients without any appreciable danger of uncompensated acidosis. A basic ash diet seems more rational than an acid ash diet in the treatment of congestive heart failure, since the latter diet is usually of higher sodium content. Nausea and vomiting and skeletal decalcification do not constitute major problems in the use of acid-producing substances.

**Streptomycin in Draining Tuberculous Sinuses.**—Nalls and Moyer used streptomycin in treating 42 patients who had draining tuberculous sinuses. Twenty-three patients, 19 Negro and 4 white, under the old regimen were given 1.8 Gm. of the drug intramuscularly daily in six fractional doses of 0.3 Gm. Nineteen patients, 11 white and 8 Negro, received 0.2 Gm. intramuscularly every four hours for five doses, or a total daily dose of 1.0 Gm. In 15 of the first group, the draining sinuses originated in bone or cartilage; 3 were from tuberculous glands and 2 developed after removal of a tuberculous epididymis. In 7 of the second group the sinuses originated about the rectum; 6 were from bone or cartilage; 4 followed epididymectomy, and 2 were in the chest wall following thoracoplasty. Twenty-one of the 23 patients under the old regimen have had complete closure of all their sinuses, and the sinuses have remained closed for a follow-up period of seven to twelve months following termination of treatment. Eleven of the 19 patients under treatment with the new regimen had complete closure of all their sinuses and in 8 the sinuses are rapidly closing. With the reduced dosage under the new regimen, the same results are being attained with a decided reduction or complete absence of the toxicity noted under the old regimen. Under the reduced dosage resistance of the tubercle bacilli to streptomycin does not develop as often or as quickly as under the old regimen. Under the reduced dosage, treatment given twice daily, which secures a higher streptomycin blood level peak, produces less resistance than the more frequent treatment of five injections daily with a smaller streptomycin blood level peak. The treatment routine advised at present is 1 Gm. daily, 0.5 Gm. twice daily, twelve hours apart, intramuscularly, and duration of treatment for thirty days after healing has taken place or for a total of one hundred and twenty days, whichever is shorter.

**Sulfadiazine in Meningococcic Meningitis.**—The Pages used sulfadiazine in treatment of 60 consecutive patients, 43 white and 17 Negro, 59 men and 1 woman with an average age of 26 years, who had meningitis and were admitted to a station hospital between December 1942 and June 1945. It was the sole specific drug used in 52 cases, while it was used in combination with antimeningococcus serum in 3 cases, with penicillin in 5 cases and with sulfanilamide, antimeningococcus serum and penicillin in 1 case. The patients received an average total dose of 7.75 Gm. of sulfadiazine intravenously and 49.3 Gm. orally for an average of 10.2 days of treatment. One thousand cubic centimeters of sodium lactate was administered intravenously, followed immediately by 5 Gm. of sodium sulfadiazine in 100 cc. of distilled water without removal of the needle. These two medications may be repeated in eight hours if the patient is unable to retain oral medication. When the patient is able to retain oral medication, 16 Gm. of sodium bicarbonate per day in divided doses of 4 Gm. each may be given in lieu of the intravenous administration of lactate and should be continued for at least forty-eight hours after discontinuance of the sulfadiazine. Forty-eight cases of meningitis were proved to be meningococcic by laboratory methods, while 12 were considered to be "clinical" with headache, nuchal rigidity, vomiting, fever and pleocytosis of the spinal fluid. Five cases were considered mild, 28 of moderate severity, while 27 were severe. All the patients recovered. Alkalinization of the urine prevents renal complications. Meningococcemia should be suspected in a patient with arthralgia and fever. Sulfadiazine is considered the drug of choice in the treatment of uncomplicated meningococcic meningitis.

## Wisconsin Medical Journal, Madison

**47:**746-836 (Aug.) 1948

*Reconstruction of New Thumb by Tubular Pedicle and Bone Cartilage Graft. C. A. Hardin.—p. 763.

Stevens-Johnson Syndrome: Report of Case with 2 Major and 4 Minor Recurrences. S. W. Rosenberg.—p. 766.

Treatment of Infantile Paralysis During Acute Stage. P. Lewin.—p. 769.

Headaches and Head and Face Pains. W. J. Frawley.—p. 773.

Acute Obstructive Cholecystitis. P. C. Kiernan.—p. 776.

**Reconstruction of a New Thumb.**—Hardin reviews the case of a man, aged 35, who had lost a thumb three years previously. A small viable well healed stump was present. A surgical reconstructive procedure was started. A pedicle graft was raised on the right abdominal wall. A modification from the routine method of inserting bony and cartilaginous graft was employed. The stump of the right thumb was opened with a dorsal triangular incision, leaving the normal palmar contour present at the base of the first metacarpal. The proximal fragment of metacarpal was hollowed out. The drilling was done at a forward angle to give the proper position to the newly fashioned thumb. A portion of rib and curved costal cartilage was removed. The bony portion of the rib was fitted into the hollowed socket of the first metacarpal. The lateral portion of the pedicle was now detached and the free end of the pedicle was hollowed out to receive the graft. The medial portion of the pedicle remained attached for blood supply. Later the pedicle was detached medially, and the distal end of the newly fashioned thumb was closed. Complete healing of thumb had taken place three weeks after the attachment of the pedicle to the hand. The patient is able to touch the midportion of the little finger. Sensation is gradually returning to the new thumb. Rotation, abduction and adduction are present in a useful range of motion.

## FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

### British Journal of Dermatology and Syphilis, London

60:235-274 (July-Aug.) 1948

Detection of Primary Cases of Syphilis Without Clinical Symptoms by Serologic Tests Only. J. Desneux.—p. 235.
Attempt to Investigate Fungus Cultures in Hanging Drop: Preliminary Report. A. A. Zimerinov and S. M. Rafalovich.—p. 238.
Tuberculoid Leprosy: Warty Lepride. O. G. Costa and H. B. Aleixo.—p. 243.
Lichen Planus of Alimentary Canal and Tympanic Membranes. R. P. Warin, P. Hall-Smith and F. O'N. Daunt.—p. 249.

### British Medical Journal, London

2:237-280 (July 31) 1948

*Continued Hypertension: Prognosis for Surgically Treated Patients. R. H. Smithwick.—p. 237.
The Sphenoid Sinus. A. W. Proetz.—p. 243.
Surgical Anatomy of Parotid Gland. H. Bailey.—p. 245.
*Acute Uremia. S. G. Zondek.—p. 248.
*Fibrositis. J. Cyriax.—p. 251.

**Prognosis After Surgical Treatment of Hypertension.**—Smithwick reports on 263 patients with essential or malignant hypertension treated surgically from 1938 to 1943. A thorough denervation of the splanchnic bed was performed in two stages spaced eight to ten days apart, the lumbodorsal (thoracolumbar) technic (Smithwick 1940) being used. The purpose of this communication is to discuss the present status of these patients, all of whom were operated on at least five and at most nine and a half years ago. This report deals with 256 patients, of whom all had reached the stage of continued hypertension and 99 per cent had cardiovascular disease, which was serious in about 80 per cent of the group. Most of them had failed to respond to other therapeutic measures. Male patients comprised 39.4 per cent and female patients 60.6 per cent of the series. The total mortality during the five to nine year period of observation was 31.2 per cent. The mortality among males was 34.3 per cent and for females 29.1 per cent. Survival curves following surgical treatment are compared with those of Keith, Wagener and Barker. The survival rate was higher in all groups in the surgically treated series. The status of the electrocardiograms in a group of surgically treated patients is compared with that of a control series reported by Canabal, Warneford-Thomson and White. The difference observed was also found to be significant statistically. With regard to symptoms, over 90 per cent of the patients who have so far been interviewed five to nine years after operation are improved in this respect. The effect of operation on the cardiovascular system has been indicated by comparing the changes in various vascular areas before with those noted five to nine years after operation with particular reference to eyegrounds, electrocardiograms, renal function and the vascular system as a whole. Of 120 patients in whom the retinal area was examined 40.7 per cent showed improvement, 39.2 per cent showed no change and 20 per cent were worse. For 125 electrocardiographically examined patients the corresponding figures were 42.3 per cent, 48.8 per cent and 8.9 per cent. For 114 patients in whom the renal vascular region was examined the figures were 28.9 per cent, 61.3 per cent and 9.8 per cent and for 100 patients in whom all vascular areas including the cerebral were considered the figures were 51, 12 and 37 per cent. Further comparison of surgically and nonsurgically treated patients is desirable, but experience so far suggests that surgical treatment has favorably altered the prognosis for many patients with continued hypertension and cardiovascular disease.

**Acute Uremia.**—Zondek points out that extrarenal uremia or "prerenal uremia" according to Fishberg and "renal anoxia" according to Maegraith and associates is probably the most frequent form of acute uremia. Extrarenal uremia is a nonspecific body reaction—i. e., a pathologic process met with in different diseases. The uremia in question is called "extrarenal" because it occurs in disease not primarily involving the kidneys. The renal failure in these cases seems to be of a functional nature; another and essential characteristic is its association with extrarenal azotemia, a process caused by increased endogenous breakdown of protein which can be diagnosed by symptoms such as an increase of nonprotein nitrogen in the blood in addition to a dissociation of the urea-sodium chloride excretion. Since burns, crushing, surgical shock, hepatic disorders and myocardial infection may cause extrarenal azotemia plus renal failure—that is, extrarenal uremia—the author suggests that primary renal disease may also cause this complex of symptoms. He presents a case which seems to prove this assumption. One of the 2 other cases reviewed is of extrarenal azotemia caused by general infection in a patient with chronic nephritis. The extrarenal azotemia and the chronic nephritis existed separately and did not interfere with each other. The third case is one of severe acute cholecystitis complicated by acute uremia. The urinary excretion, at least in the first three days, of only small amounts of urea in spite of a high urea level in the blood suggests that the renal insufficiency must have been rather severe. But a process of extrarenal azotemia, too, must be assumed. This, however, was not recognizable until, from the third day onward, the daily urinary excretion of urea rose (to 37 to 70 Gm.) while the urinary excretion of sodium chloride still remained low; the sodium chloride-urea ratio was up to 1:10. The author stresses that acute uremia occurring in cases of chronic renal disease may be of the type of extrarenal uremia. Extrarenal uremia represents the pattern for most of the cases of acute uremia. The term "extrarenal uremia" may be replaced by "acute nonspecific uremia."

**Fibrositis.**—Cyriax is in agreement with the practice of dividing fibrositis into a primary and a secondary form, but he is convinced that primary fibrositis is an imaginary disease, whereas the secondary form is a real entity. He concedes that with regard to primary fibrositis authoritative opinions have been backed by pathologic changes in excised tissues; he does not deny the occurrence of such changes but only their bearing on symptoms. The following preconceptions should be discarded: that muscle spasm denotes a disorder of muscle, that muscles in spasm are tender, that tenderness of muscle indicates a muscle lesion, that nodules or crepitus at a muscle are significant, that limitation of movement in more than one direction can result from a muscle lesion alone and that examination of conduction along a nerve suffices. The author further considers the physical signs and the subsequent history in patients hitherto regarded as suffering from rheumatic fibrositis. He discusses acute rheumatic torticollis, vertebroscapular fibrositis, brachial neuritis, pleurodynia, acute lumbar fibrositis (lumbago), chronic lumbar fibrositis (backache), gluteal and sacroiliac fibrositis, sciatica and anterior crural neuritis. The underlying principle of the treatment of primary fibrositis is to secure reduction of the intra-articular displacement causing the symptoms. The author shows that there is no controversy about the existence of four categories of secondary fibrositis. Under the heading of traumatic fibrositis he mentions tennis and golf elbow. The other three forms of secondary fibrositis are rheumatoid fibrositis, infectious fibrositis and parasitic fibrositis.

### Guy's Hospital Reports, London

96:141-257 (Nos. 3 and 4) 1947. Partial Index

Studies in Lung Abscess; Part V. Etiology of Lung Abscess. R. C. Brock.—p. 141.
Formation of Substantives from Greek in the Medical Vocabulary. H. S. H. Vertue.—p. 169.
Dysphagia Lusoria: Right-Sided Aortic Arch. W. N. Mann.—p. 186.
Heart Disease and Pregnancy. Study of 100 Pregnancies. P. R. C. Evans.—p. 194.
*Chronic Relapsing Pancreatitis: Some Notes on Its Pathology, Diagnosis and Treatment. R. E. Horton.—p. 226.

**Chronic Relapsing Pancreatitis.**—According to Horton there is a gradation of severity from the familiar acute pancreatitis to a less often recognized subacute pancreatitis, which is characteristically a relapsing disease. The clinical picture may be difficult to recognize and in typical cases closely resembles recurrent cholecystitis with gallstones. If the biliary investigation is negative a diagnosis of relapsing pancreatitis is possible and may be confirmed by estimating the serum diastase during an attack. Of 7 cases of relapsing pancreatitis which have been recorded in 1 the patient died in a more acute attack; 4 others were treated by cholecystenterostomy. One of these died after operation. The other 3 have been relieved, 2 completely and 1 incompletely. Two other patients remain under observation. During the acute attacks treatment should be conservative with bed rest, and morphine to relieve pain. The indications for operation would appear to be the relief of severe and recurrent pain and the prevention of a more acute and fulminating attack from which the patient might die. A fulminating attack can be prevented with certainty only by pancreatectomy, but this is an uncommon complication and does not warrant such a severe operation. Thoracolumbar sympathectomy, splanchnic block and external or internal biliary drainage are other interventions that have been suggested. The author believes that internal biliary drainage has a fair chance of curing the symptoms. Should this be unsuccessful thoracolumbar sympathectomy may be performed. Pancreatectomy, with its higher mortality rate and the disadvantage of making the patient diabetic, should be reserved for patients with severe pain, such as may be associated with pancreatic lithiasis, and which is unrelieved by other operative measures.

## Lancet, London

### 2:169-204 (July 31) 1948

*Latent Tetany Caused by BAL (2: 3 Dimercaptopropanol). B. Russell, B. Green and L. G. R. Wand.—p. 169.
*Treatment of Tuberculosis with Sulphetrone. D. G. Madigan.—p. 174.
Chemotherapy of Tuberculosis with Sulphetrone. Mary G. Clay and A. C. Clay.—p. 180.
Radical Cure of Inguinal Hernia with Plastic Insert. W. Thompson. —p. 182.
Handkerchiefs in Transfer of Respiratory Infection. K. R. Dumbell, J. E. Lovelock and E. J. Lowbury.—p. 183.

**Latent Tetany Caused by BAL.**—The occurrence of cramp-like pains in the limbs and spasms of the fingers in a patient undergoing treatment with BAL (2:3 dimercaptopropanol) suggested to Russell and his associates that a state of latent tetany might be present, and the detection of Chvostek's sign on both sides confirmed this suspicion. The absence of alkalosis made it probable that the tetany was of low calcium or low magnesium type. A study of potassium, sodium, calcium, magnesium and inorganic phosphate levels in the serum in this and other patients and volunteer students was made after intramuscular injections of BAL. Studies of 13 patients and volunteers receiving doses of BAL between 0.75 and 6.11 mg. per kilogram of body weight revealed, besides toxic symptoms, a positive Chvostek sign in 7, of whom 1 also had a positive Trousseau sign. Of the remainder, 5 had cramps and other toxic symptoms, and 1 was free from symptoms. Serum studies suggest that the tetany may be of low magnesium and possibly also of low calcium type, because these kations either were rendered unavailable to the cells or were removed attached to BAL. All the symptoms of toxicity from BAL are capable of explanation as latent tetany. Calcium balance and magnesium balance studies are necessary to explain the metabolic disturbances. In doses of 3.4 mg. per kilogram of body weight daily for four days BAL gives great relief to sufferers from arsenic, gold and mercury intoxications, and the danger of a temporary unavailability of pericellular calcium and magnesium can be ignored if the patient is provided with a high calcium diet, magnesium sulfate and vitamin D. The serum sodium and serum potassium levels were not appreciably affected by the injection of BAL.

**"Sulphetrone" in Tuberculosis.**—Madigan says that in 1943 a clinical trial with "sulphetrone" (4,4'-bis [gamma-phenyl-N-propylamino] diphenylsulfone-tetrasodium sulfonate) was organized at the County Hospital of Farnborough, Kent. The choice of clinical material was dictated solely by its presentation within the hospital; thus it represents a statistically unselected population drawn on for five years. Pulmonary cases predominated, but all types of tuberculosis were included. A total of 70 cases were treated. Whether "sulphetrone" is given parenterally or by mouth, a gradual increase of dosage is necessary to build up therapeutic levels in the blood of 7.5 to 10 mg. per hundred cubic centimeters if toxic symptoms are to be avoided. It is also essential to give iron and brewers' yeast to avoid hypochromic and nutritional anemia. Even so a residual hemolytic anemia will arise, leading to a fall in hemoglobin concentration though not to below 60 per cent (Haldane). To avoid major toxic emergencies, seen when blood "sulphetrone" levels above 12.5 mg. per hundred cubic centimeters are allowed to persist, a scheme of management is suggested. No beneficial effect was detected from "sulphetrone" therapy of acute infections—e. g., acute miliary tuberculosis and tuberculous meningitis—but a patient with chronic miliary tuberculosis recovered. Improvement was observed in chronic lesions. Thus 12 out of 17 cases of acute pulmonary fibrocaseous disease and 13 of 22 cases of chronic disease improved. All of 4 cases of primary pulmonary tuberculosis, and 6 of 8 of strictly exudative lesions, improved. In the chronic hematogenous group all of 4 cases improved, and in productive pulmonary infiltrative group 3 out of 4 improved. In general, all exudative phases of infiltrative disease were halted and reversed by "sulphetrone." The need for long-continued courses is emphasized, units of observation being three months, and routine laboratory control is essential.

## Medical Journal of Australia, Sydney

### 2:57-84 (July 17) 1948

Intracranial Disorders of New-Born Associated with Birth. Kate Campbell.—p. 57.
Epidemic of Gastro-Enteritis in Infants, with Special Reference to Treatment. G. Stable and I. G. Philpott.—p. 63.
*Some Aspects in Management of Case of Jaundice. M. E. Chinner. —p. 69.

**Management of Jaundice.**—Chinner discusses various functional problems and reports a case to illustrate the procedure necessary to separate obstructive from parenchymatous jaundice. He considers the constant presence of urobilinogen and the failure to respond to vitamin K as valuable tests. A serum colloidal gold test should be performed. This will produce a strongly positive result in hepatogenous jaundice and a negative result in obstructive jaundice. A serum phosphatase test is also useful; this will produce a reading of over 30 units in the obstructive type of jaundice and of less than 30 units in the hepatogenous type. The most valuable tests for differentiating obstructive and hepatocellular jaundice are (1) the urinary urobilinogen test, (2) the serum colloidal gold test, (3) the serum alkaline phosphatase test and (4) the response of the plasma prothrombin time to vitamin K. Liver biopsy is valuable, but requires experience and must not be done if the prothrombin time is abnormal. The first requirement in the treatment of the jaundiced patient who has hepatitis is rest, and this must be maintained until the patient has completely recovered. In the acute stages this is not difficult, as the patient frequently feels ill, but in the more chronic forms of hepatitis it is easily proved that exercise will bring about a swelling of the liver and exacerbation of symptoms. When the patient is walking about avoidance of fatigue is essential. In the acute stage the patient will take only fluids with a high carbohydrate content; if the vomiting is severe, then dextrose must be given by the intravenous drip method. As the hepatitis becomes subacute, a high calory diet becomes necessary. In the past it has been thought that diets poor in or free from fat were a necessity; but recent opinion holds that such diets are undesirable, as they are poor in calories and unpalatable. Recently the author has been using gradually increasing amounts of fat. The author also gives vitamins of the B group, crude liver injections and dried brewer's yeast.

## Acta Chirurgica Scandinavica, Stockholm

### 96:485-582 (June 28) 1948. Partial Index

Radical Extirpation and Primary Closure of Deep Thoracic Fistulas. J. L. Hansen.—p. 485.
Drawbacks Encountered in Local Treatment of Pleural Empyema with Chemotherapeutic and Antibiotic Agents. J. L. Hansen.—p. 509.
*Penicillin Treatment of Acute Hematogenous Osteomyelitis. E. E. Vuori and M. Sulamaa.—p. 547.
Intestinal Suction Treatment with Miller-Abbott Tube. S. S. Krook. —p. 562.

**Penicillin in Hematogenous Osteomyelitis.**—The material reviewed by Vuori and Sulamaa was collected from several hospitals. It comprises 83 cases in which 92 bones were involved. Ten patients were adults and the remainder children below 17 years. The infecting organism was determined in 60 patients; in 2 streptococci were found; in 1 both streptococci and staphylococci; in 1 Staphylococcus albus and in the remainder Staphylococcus aureus. The treatment varied considerably in the different hospitals. Treatment with penicillin was often commenced rather late. One patient died probably because of insufficient dosage of penicillin. In the majority of cases the effect of penicillin on the general infection at the initial stage was good. The disease became chronic in spite of the treatment with penicillin in 42 cases, and did not heal until sequestrectomy or radical trepanation had been performed. The treatment with penicillin gave better results in the cases of primarily chronic disease than in those of acute disease; it was more effective in the cases which showed principally osteoplastic roentgenologic bone changes than in those showing principally osteolytic changes. No significant correlation could be proved between the recovery and the intensity of the treatment with penicillin and the time of its commencement. The fact that the group of cases in which treatment with penicillin was given within the first week of illness contained a significantly larger number of cases of the osteoplastic type than the group which came under treatment later indicated that it is important to aim at early treatment. Patients treated with smaller doses had a lower frequency of complications.

### Acta Neurologica et Psychiatrica Belgica, Brussels

**48:281-338 (July) 1948**

Answer to Report by Professor Van Gehuchten on Hemolytic Serum Therapy in Multiple Sclerosis. M. Laignel-Lavastine and N. T. Koressios.—p. 281.
*Contribution to Study of Deficiency of Intelligence in Patients with Parkinsonism as Sequela of Lethargic Encephalitis. R. Nyssen and M. Wens.—p. 287.
Systematized Nervous Diseases and Problems of Heredity. L. van Bogaert.—p. 308.

**Deficiency of Intelligence in Patients with Parkinsonism.**—Nyssen and Wens studied the intelligence of 69 adults, 50 men and 19 women, with postencephalitic parkinsonism by submitting them to four different tests. Each test consisted of eight problems which had been given previously to 175 normal adults, working men and women and housewives. A deficiency of intelligence was demonstrated by these tests in the majority of the patients. Each of the normal controls as well as each of the patients was tested individually. The degree of difficulty in solving every single problem was established statistically in the controls. These statistical norms made it possible to compare the average of the results obtained in the patients with that of the results obtained in the controls; these norms also warranted an approximate estimate of the incidence and of the degree of the decrease in intelligence of the patients with parkinsonism. By these methods of examination it has been ascertained that the majority of patients with postencephalic parkinsonism present a certain degree of deficiency of their intellectual capacity in its strict sense, a deficiency which may reach the level of manifest oligophrenia. By various grouping procedures it has been possible to observe that the age of the patient at the time of the tests and at the time of the acute infection or the duration of Parkinson's syndrome and the coexistence of psychopathic or psychotic disorders hardly correlate with the degree of deficiency of intelligence. In contrast to that, there seems to be some causal relationship, or at least a reciprocal relation, between the intensity of Parkinson's syndrome and institutional treatment of the patient on one side and the degree of the decrease in intelligence on the other side.

### Chirurg, Heidelberg

**19:241-288 (June) 1948**

*Intramedullary Nailing and Free Bone Chip Plastic. H. Hellner.—p. 241.
Method of Roentgenographic Demonstration of Brain Abscess by Contrast Medium: Preliminary Report. H. Kolmer.—p. 247.
Contribution to Symptomatology of "Megacolon" with Particular Consideration of Megasigmavolvulus from Malnutrition. W. Hartkopf.—p. 250.
Problem of Overbridging Severe Nerve Lesions. B. Hummel.—p. 253.

**Intramedullary Nailing and Bone Chip Plastic.**—According to Hellner, the effectiveness of intramedullary nailing in genuine pseudarthrosis should not be overestimated. Results in 19 cases of genuine pseudarthrosis, 6 of the humerus, 3 of the forearm, 5 of the femur and 5 of the leg, showed that exact immobilization with the exclusion of all mechanically unfavorable influences is indispensable in addition to intramedullary nailing. Bone autotransplants are required for traumatic pseudarthrosis. Twenty-one cases, 10 of the humerus, 7 of the radius, 2 of the ulna, 1 of the femur and 1 of the leg are reported. The bone plastic is far superior to simple intramedullary nailing as well as to that combined with excision. The bone transplant must be prepared in a carpenter-like fashion, and it must be rammed in, folded in or pinched as a carpenter does it. The simultaneous employment of Küntscher's nail is dispensable, because a plaster of Paris cast is to be applied in every case and because later on the nail must be removed anyway. Küntscher's nailing and autotransplantation do not exclude one another. In no case was the taking of the transplant disturbed by nailing and that in pseudoarthrosis as well as in osteoma and in congenital pseudarthrosis. Reduction osteotomy may be carried out with the nailing technic; dehiscence must be avoided and the fragments must be brought in close contact. Küntscher's nail may be used satisfactorily for other types of osteotomy, likewise.

### Klinische Wochenschrift, Heidelberg

**26:353-384 (June 15) 1948. Partial Index**

Dynamics of Insufficiency of the Left Heart. K. Blumberger.—p. 353.
Protein Metabolism During Nutritional Deficiency and During Restoration. H. W. Bansi and G. Fuhrmann.—p. 358.
*New Serum Phenomena During Postoperative Phase After Tonsillectomy. M. Frobenius and Elizabeth Völkel.—p. 368.
Paroxysmal Paralysis and Hyperventilation. W. Skalweit.—p. 371.

**Serum Phenomena After Tonsillectomy.**—The observations reported by Frobenius and Völkel were made on 2,000 patients who had undergone tonsillectomy. Since most of the operations were made on the basis of medical indications, postoperative observations were usually more prolonged than is usually the case in laryngologic departments. It has been suspected that during the postoperative phase processes take place in the serum which may be related to the course of serum disease. If in a healthy subject several intracutaneous wheals are produced with several different normal serums on symmetric locations of the skin of the back, it can be seen that all wheals remain of the same size and behave like a single wheal. If the same is done on a patient nine days after tonsillectomy, wheals develop which rapidly increase to about the size of a penny, are white like porcelain and are surrounded by a red areola with pseudopodia-like extensions. These wheals subside much less rapidly than those that form in normal persons. Such wheal tests were made on 25 patients on the ninth day after tonsillectomy and were repeated with one hundred and fifty different serums. All except one of the persons tested showed the same results. The experiment was repeated on another group of 25 patients on the twelfth day, and all 25 showed a "hyperergic reaction." Summarizing these and other observations, the authors say that during the postoperative period after tonsillectomy characteristic serum phenomena can be elicited which are analogous to the behavior observed after the injection of serum of a heterogenous species. This is the more noteworthy since hemolysins against sheep erythrocytes can be demonstrated in the blood of tonsillectomized patients. These observations suggest the existence of two antigen-antibody systems which develop during convalescence and determine its course. In addition an increase in the nonspecific reactivity of the skin is observed, the course of which is apparently related to the aforementioned processes.

### Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

**92:1749-1820 (June 12) 1948. Partial Index**

*Direct Results of Vagotomy in Presence of Gastric Complaints Following Operation on Account of Ulcer. I. Boerema.—p. 1755.
Treatment with Penicillin Aerosol. E. L. Cardozo, M. C. van der Plas and M. van den Ban.—p. 1767.
Development of Large Papules in Scabies. G. Cremer and J. R. Prakken.—p. 1778.

**Vagotomy in Gastric Disturbances After Operation for Ulcer.**—Boerema reviews observations on 25 patients who previously had undergone surgical operations on the stomach, but in whom symptoms had persisted or returned and who on this account had been subjected to a transthoracic vagotomy. In 19 of these, in whom an earlier laparotomy had established the presence of an ulcer, vagotomy completely counteracted the symptoms. Among the 6 in whom the first operation had not disclosed an ulcer, but who had nevertheless been subjected to an operation on the stomach, there were 2 in whom vagotomy was successful; in 1 there was some improvement and in the other 3 vagotomy was ineffective. Thus vagotomy was effective in the presence of disturbance after gastric operation for ulcer, but not when no ulcer was present.

#### *92:1821-1896 (June 19) 1948.* **Partial Index**

Investigation of Long Term Results of Rollier's High Mountain Treatment in So-Called Surgical Tuberculosis. P. Frank.—p. 1825.
*Evaluation of Electric Shock Therapy. A. Hutter.—p. 1830.
*Results Obtained in Tuberculous Bronchitis with Large Doses of Vitamin $D_2$, Gold Preparations and Streptomycin. C. Dijkstra.—p. 1835.
Gamma Globulin in Bacterial Infections. S. van Creveld.—p. 1845.

**Electric Shock Therapy.**—Hutter advises that electric shock treatment be carried out during institutional care rather than under dispensary conditions. In schizophrenia there has been a return to insulin and "metrazol" shock as more effective than electric shock, but electric shock has nevertheless symptomatic value, particularly in the presence of restlessness. Electric shock is definitely the most suitable treatment of endogenic depressions, irrespective of severity, duration or age of patient. Manic depressive patients over 70 years of age are usually still strong enough to withstand electric shock treatment. Close cooperation with the cardiologist is important in electric shock treatment and, when there is doubt, an electrocardiogram should be taken before electric shock is induced, but this is not necessary in all patients. The cardiologist will rarely forbid electric shock treatment, except in patients with disturbances in the cardiac conduction system or with serious myocardial changes. A general examination, which should precede the shock treatment, may reveal contraindications, but they are few. A melancholic patient who has diabetes can be subjected to electric shock treatment, even if he receives insulin.

**Large Doses of Vitamin $D_2$, Gold Preparations and Streptomycin in Tuberculous Bronchitis.**—Dijkstra stresses the importance of an early bronchographic and bronchoscopic examination in patients expectorating positive sputum who have no demonstrable cavity. If this is done tuberculous bronchitis is frequently found in these patients. The author presents a number of illustrative cases. These cases also show the favorable therapeutic results obtained with gold preparations, with vitamin $D_2$ and, in some cases, with streptomycin in extensive and severe tuberculous bronchitis.

### Nervenarzt, Heidelberg

#### **19:***97-200* (March-April) *1948.* **Partial Index**

*Prefrontal Leukotomy with Particular Attention to a Case of Compulsion Neurosis. M. Müller.—p. 97.
*Epileptic Attack, Sleep and Periodicity. K. H. Stauder.—p. 107.
Psychologic Investigations on Patients Who Have Sustained Brain Injuries. A. Busemann.—p. 120.
Psychology of Prisoners of War. M. in der Beeck.—p. 136.
Narcolepsy and Regulatory Disturbances in Central Nervous System. W. Skalweit.—p. 140.
Malaria Psychoses. P. Lowitzsch.—p. 146.
Polyneuritis After Bacillary Dysentery. A. Herrlich.—p. 167.

**Prefrontal Leukotomy.**—Müller reviews observations on 26 patients subjected to prefrontal leukotomy. The technic employed was that described by Freeman and Watts. No fatality resulted from the operation in these 26 cases. The author evaluates the results obtained in 20 cases in which more than six months had elapsed since the operation. One case, that of a woman, aged 80, who for fifty years had had a phobic obsession, is reported in detail. In this case the operation resulted in a peculiar change in the emotional life. Defense mechanisms lost their obsessive character and the woman was able to live with more composure and calm. Of the other 19 patients, 1 with paranoia was freed from his symptoms for several months, but, after that, silliness, excessive euphoria, loss of inhibitions and weakness of concentration became evident. Five patients were sufficiently improved so that they could be discharged into familial care. In 7 other patients there was a slight improvement, which rendered them more easily manageable in the institution. The other 7 patients remained uninfluenced by the operation, aside from brief improvement immediately after the operation. Müller concludes that leukotomy can never be a treatment with truly causal effect; but it leads to psychic release. The author warns against exaggerated optimism.

**Epileptic Attack and Sleep.**—Stauder shows that lack of sleep effects in many epileptic patients an increase in attacks. These epileptic patients show increased irritability. During the war the author observed that formerly well men, who had passed beyond the age when epilepsy becomes manifest, occasionally responded to extreme lack of sleep with epileptic attacks. Many of them exhibited the same sleep disturbances as did epileptic patients, anxiety states with motorisms and forms of tremor. The connections between epileptic attacks and sleep are supported by abnormalities in the sleep of epileptic patients such somnambulistic states, motorisms during sleep and disturbances in the waking mechanism; relation between postepileptic sleep and the time of the next attack; the recurrence of attacks during certain hours of the night, and the effect of hypnotics and stimulants on the epileptic attack. In contradistinction to Economo, the author regards postepileptic sleep as comparable to true sleep, particularly because it has a considerable restorative effect. During the advanced stages of epilepsy sleep is insufficiently restorative, and this partly explains the progression and change in the personality. Comparison of bioelectric brain processes during sleep and during attacks throws more light on epileptic sleep phenomena.

### Nordisk Medicin, Stockholm

#### **39:***1375-1410 (July 23) 1948.* **Partial Index**

Spondylarthritis Ankylopoietica. Review. L. Brahme.—p. 1375.
*Antihistamine Treatment in Allergic Diseases. Experimental Basis. Å. Nilzén.—p. 1382.
*Antihistamine Treatment in Allergic Diseases. B. Arner.—p. 1386.
Atrial Flutter in Old Persons. H. Buch and T. Fløystrup.—p. 1399.
Treatment of Cancer of Stomach During Twenty-Year Period. C. Brynjulfsen.—p. 1402.

**Antihistamine Treatment in Allergic Diseases. Experimental Basis.**—Investigations to date indicate histamine to be a factor of decisive importance in anaphylaxis and allergy. Histamine is most likely released by the antigen-antibody reaction. Experimental anaphylaxis reactions in animals and experimental allergy reactions in man can be prevented by drugs antagonistic to histamine. Nilzén says he has demonstrated that urticaria and eczematous reactions can be lessened or prevented by the use of antihistamine.

**Antihistamine Treatment in Allergic Diseases.**—Arner reports that treatment with antihistamine had good or appreciable effect in 15 of 29 cases of allergic rhinitis (10 with residual symptoms after earlier antiallergy treatment, 5 of untreated mild rhinitis), good effect in 4 of 14 not desensitized cases of hay fever and in 16 of 24 desensitized cases, no effect in 19 of 25 cases of bronchial asthma and uncertain effect in 6, good effect in acute urticaria, good or appreciable effect in 6 of 19 cases of chronic urticaria and good effect in 11 of 12 cases of serum sickness. Secondary by-effects were rare and mild. Specific desensitization is superior to treatment with antihistamine preparations alone, but antihistamine affords relief in cases with residual symptoms after specific desensitization. The effect of antihistamine during specific desensitization as studied in 35 cases was inferior to that of epinephrine; use of antihistamine during specific desensitization did not seem to hasten desensitization. Evaluation of some of the results of antihistamine treatment published is difficult because it is not clear whether or not other antiallergic treatment was also given and the effects of the antihistamine are not classified.

### Nourrisson, Paris

#### **36:**113-148 (July-Aug.) 1948

*Acute Leukosis in First Year of Life.* R. A. Marquézy and P. Royer.—p. 113.
*Present State of Vaccination and of Serum Therapy Against Whooping Cough. F. Verliac.—p. 126.
Clinical Aspect of Diphtheria of Infants in Course of Epidemic of 1945-1946. R. Sacrez, P. Beyer, T. Uhl and Miss A. Sagot.—p. 139.

**Vaccination and Serum Therapy Against Whooping Cough.**—According to Verliac, the new concepts of prophylaxis and treatment of pertussis in the United States hold out hopes of a wider employment in France of vaccination and serum therapy the practice of which so far has been rather limited. The effectiveness of vaccination within the first six months of life has not yet been demonstrated beyond doubt. Vaccination, therefore, is suggested of children at the age of 6 months; it may confer immunity about the ninth or the tenth month of life. The following year the injection should be repeated in case of possible contamination. Biologic tests, such as the determination of agglutinins and opsonins, and particularly the agglutinogen skin test, make it possible to distinguish children who are susceptible to the disease from immunized children and thus to determine the effectiveness of the vaccination. When contact is suspected, and as soon as possible after that, prophylactic injection of human or rabbit antipertussis serum should be given to a child which has not been vaccinated. Highly satisfactory results from the same serum in cases in which diagnosis of pertussis has been established demonstrated the usefulness of this serum particularly in extremely young children or in those with pulmonary complications. These methods of treatment must be combined with the usual measures of hygiene and with symptomatic treatment. Systemic treatment with streptomycin or treatment with streptomycin aerosol is suggested for grave cases of pertussis.

## Revista de la Asoc. Med. Argent., Buenos Aires

### 62:277-324 (June 15-30) 1948. Partial Index

*Blastomas of Mesenchyma of Bones. D. Brachetto-Brian.—p. 285.

Action of Rutin on Capillary Fragility and Permeability. A. Pavlovsky and H. Castellanos.—p. 309.

**Blastoma of Mesenchyma of Bones.**—Brachetto-Brian reports clinical, roentgenologic, pathologic and therapeutic observations on 38 cases of so-called blastoma of bone mesenchyma. These tumors originate in the reticular tissue of the bone marrow and should be termed reticuloblastomas. The malignant type is highly metastatic, involving, most frequently, the bones. The disease is fatal in three to seventeen months after appearance of the early symptoms of tumor. The sensitivity of the tumor to roentgen rays depends on the variety of the tumor, which, according to the author, can be (1) syncytial, (2) lymphocytic, (3) angiovascular and (4) xanthocellular. The syncytial variety is represented by tumors of the type of Ewing's sarcoma. These tumors have the histologic structure and potential capacity of evolution of mesenchymal tissue and a marked sensitivity to roentgen rays. The lymphocytic variety includes the greatest number of cases of malignant reticuloblastoma (the classic lymphosarcoma of bones). These tumors show histologic changes with serial transitions of syncytial reticuloblastoma into highly differentiated lymphosarcoma. The angiovascular variety of tumor may be benign or malignant. Benign tumors in this group are recurrent, whereas malignant tumors are moderately malignant. The angiocellular type is stubbornly recurrent, even after the most ample surgical resection. The xanthocellular variety is rare. Tumors of this variety are either benign or malignant. The malignant form can be compared to systemic xanthosarcoma. It is the form in which metastases to the bones are most frequent.

## Schweizerische medizinische Wochenschrift, Basel

### 78:777-800 (Aug. 14) 1948. Partial Index

Nature of Sympathetic Biokatalyzer in Nerves of Spleen of Cattle. U. S. v. Euler.—p. 777.

Prostatogenic Retention as Expression of Latent Tetany. R. Allemann. —p. 778.

Clinical Experience with New Preparation of Coumarin Derivatives. Z. Reiniš and M. Kůbik.—p. 785.

*Treatment of Abscess of Small Pelvis by Local Injection of Penicillin. D. Stucki.—p. 790.

**Local Penicillin Treatment of Abscess of Small Pelvis.**—Stucki treated 4 women between the ages of 27 and 51 with abscess of the pelvis of genital origin, by local injections of penicillin. The first patient had suppurating streptococcic parametritis with a fistula well encapsuled and surrounded by a fibrous wall and resistant to intensive treatment with penicillin and sulfonamide drugs for three months. Closure of fistula and disappearance of the tumor were obtained after four local injections of 100,000 units of penicillin within eight days. Definite recovery was demonstrated on examination within six months. Satisfactory results were obtained in the second patient with acute gonococcic pyosalpinx to whom four local injections of 200,000 units of penicillin were given. The local treatment was reinforced by systemic treatment with 160,000 units of penicillin daily for eight days. Recovery occurred, but an adnexal tumor persisted. Clinical recovery was obtained in the third patient with parametritis due to streptococcus and staphylococcus. Suppuration was controlled with five injections of 100,000 units of penicillin, but the abscess was transformed into an infiltrated mass which required three additional local injections of 100,000 units of penicillin and systemic treatment with penicillin for three weeks. Treatment of the fourth patient with bilateral adnexitis and right pyosalpinx due to highly virulent streptococcus was a failure. The tumor disappeared after six local injections with 100,000 units of penicillin. Pyosalpinx developed at the left side and disappeared after three local injections of 100,000 units of penicillin, but new abscesses occurred which involved the entire small pelvis. Sulfonamide drugs, penicillin and streptomycin were ineffective, and death occurred after seven months of treatment. Local treatment with four to six injections of 100,000 to 300,000 units of penicillin every second day is recommended for pyosalpinx and acute and chronic parametritis, resulting in rapid recovery or modifying the patient's condition to such an extent that secondary surgical intervention may safely be carried out.

## Semaine des Hôpitaux de Paris

### 24:1999-2040 (Aug. 18) 1948. Partial Index

Biochemistry of Muscular Atrophy. J. C. Dreyfus and G. Schapira. —p. 1999.

*Study of Psychic Disturbances Associated with Tuberculous Meningitis Treated with Streptomycin. J. Scherrer.—p. 2004.

*Contribution to Study of Part Played by Microbes in Pathogenesis of Chronic Nephritis: Experimental Research on Permeability of Normal and Pathologic Kidney by Microbes. R. Carasso.—p. 2011.

**Psychic Disturbances Associated with Tuberculous Meningitis.**—Scherrer reports the occurrence of psychic disturbances in 21 of 30 patients with tuberculous meningitis in the first phase of the disease. The great majority of the patients were children and adolescents. Streptomycin therapy was instituted within one to ten days after the appearance of clinical signs of meningitis. The psychic disturbances consisted essentially of reduced consciousness reaching from a diminution of attention to stupor and to an anxiety state. The patients presented temporospatial disorientation, enuresis and occasionally hallucinations. The psychic disturbances were precocious and showed a tendency to regression on treatment with streptomycin. Dynamics of the cerebrospinal fluid may play a part in the pathogenesis of the mental confusion and amnesia seen in tuberculous meningitis.

**Microbes in Pathogenesis of Chronic Nephritis.**—Carasso made cytobacteriologic examinations of the urine of 34 patients with chronic nephritis and of 9 patients with ascending nephritis; i. e., chronic nephritis secondary to a prolonged infection of the pelvis of the kidney. In 29 of the 34 patients the urine was sterile and contained some leukocytes. In 6 of the 9 patients with ascending nephritis the urine contained abundant Bacillus coli and a large number of leukocytes. An emulsion of B. coli was injected into the marginal vein of the ear of adult healthy rabbits, and the urine and the blood of the animals were examined before and after the injection. The urine of the animals was sterile up to the seventh hour after the injection, and the culture of the urine was negative. A small number of bacilli were demonstrated in the urine after the seventh hour, and a large number appeared within the twenty-fourth to the forty-eighth hour. Decided albuminuria was manifested after the twenty-fourth hour of the inoculation. Characteristic lesions of acute glomeruloepithelial nephritis or of degenerative epithelial nephritis were revealed on microscopic examination of the kidneys. Blood culture from the rabbits was negative during the first hours of the inoculation; it became positive about the sixth hour, reaching its maximum at the twenty-fourth hour, and was negative again about the seventy-second hour. The bacilli probably pass out of the kidney by way of epithelial or glomeruloepithelial lesions. The microscopic picture of the lesions and the fact that bacillemia preceded bacilluria favor the hematogenic origin of this type of nephritis.

# Book Notices

**Textbook of the Nervous System: A Foundation for Clinical Neurology.** By H. Chandler Elliott, M.A., Ph.D., Assistant Professor of Anatomy, Medical College of the State of South Carolina, Charleston. With an introduction by Wilder Penfield, M.D. Fabrikoid. Price, $8. Pp. 384, with 158 illustrations and an atlas. J. B. Lippincott Co., 227-231 S. 6th St., Philadelphia 5, 1947.

This text concerns itself with descriptive anatomy of the human nervous system, neuroanatomy, and endeavors to present an integrated study of the nervous system by correlating structure with function. The author divides the text in two parts. Part I presents a brief and simple, yet complete, sketch of the nervous system. Part II, employing the sketch or framework of part I, adds details of structure and function which are necessary for a scientific knowledge of the nervous system.

The text is well illustrated by simple and understandable drawings which should appeal to the student and instructor alike. An adequate atlas of photographs with key drawings of representative levels of the nervous system is included at the end of the text.

The subject matter is up-to-date and cited references impress the reader that neurology is a relatively new science which is steadily progressing. This text, while primarily written for the medical student, should appeal to students who have less need for a detailed study of the human nervous system.

**Bacterial and Virus Diseases: Antisera, Toxoids, Vaccines and Tuberculins in Prophylaxis and Treatment.** By H. J. Parish, M.D., F.R.C.P.E., D.P.H., Clinical Research Director, Wellcome Foundation, Ltd. Cloth. Price, $2.75. Pp. 168, with illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

This pocket size book was written to present in convenient form the essential principles of immunology and their practical application in human medicine. The book is composed of sixteen chapters divided into three sections. The first section, entitled "General," is composed of four chapters. The second section, entitled "Antisera," is composed of five chapters which deal with the general properties of serums, antitoxic serums, antivenoms, antibacterial serum and antiviral serums. The third section is entitled "Serological Products for Active Immunization and Some Diagnostic Reagents," and is comprised of seven chapters dealing with immunization against diphtheria, scarlet fever, staphylococcus infections, tetanus and gas gangrene. One chapter is devoted to bacterial vaccines and one to tuberculins and BCG. vaccine. One chapter is concerned with active immunization against virus diseases. The final chapter is a tabulation of dates and discoveries with reference to specific diseases.

This book should prove valuable to the busy physician and to medical students. Obviously, with the discovery of the sulfonamide drugs and antibiotics, some of the work with antiserums and vaccines is rapidly becoming history.

**The Chemistry of the Carbon Compounds.** By Victor von Richter. Edited by the late Professor Richard Anschütz. Volume IV: The Heterocyclic Compounds. By F. Reindel (Translated by M. F. Darken), and Organic Free Radicals. By Ludwig Anschütz (Translated by A. J. Mee). Third English edition newly translated from the twelfth German edition. Cloth. Price, $12. Pp. 498. Elsevier Publishing Co., Inc., 215 Fourth Ave., New York 3, 1947.

This book, covering heterocyclic compounds and organic free radicals, is the last of the four volume series translated from the twelfth German edition. It is a concise and thorough text, covering the literature on these two topics through 1932. Delay in translation and publication due to the war accounts for the gap regarding recent literature.

**Youth in Despair.** By Ralph S. Banay. Cloth. Price, $3.50. Pp. 239. Coward-McCann, Inc., 2 W. 45th St., New York 19, 1948.

The former psychiatrist of Sing Sing gives an excellent review of all the legal, social and medical aspects of juvenile delinquency. He correlates all the findings of research; he examines carefully, with objectivity and understanding, the various factors which are considered as contributing to it, like the effects of war, poverty, broken homes, adverse parental and school influences, physical and mental diseases and handicaps. The discussion of all these factors is interspersed with illustrative case histories. The author concludes that the medical aspect, and particularly the psychologic and psychiatric dynamics of each child, are the most decisive factors leading to delinquency and must be primarily considered in prevention and treatment. The various methods to understand the individual delinquent are enumerated and evaluated, such as taking social history, the various psychologic tests and psychiatric interview; psychodrama and painting are included as methods of investigation and therapy.

The author examines critically the existing laws, agencies and institutions which deal with the problem, and finds them deplorably inadequate in every regard. He describes some well intentioned plans developed in the United States, England and Switzerland; but none is carried out to any extent. There is no coordinating over-all agency. Most detrimental of all, public opinion still adheres to a medieval notion that punishment is a means of prevention and correction, while actually it was proved a complete failure in both regards. Also the present trend toward slum clearance and extension of recreational facilities, desirable as it is, will not contribute much to the solution of the problem. It must be attacked at its core, which the author sees in the emotional and psychologic maladjustment of the child. Each child, not only the "problem child," should receive routine psychiatric-psychologic examinations, to the same extent as physical examination of school children is advocated.

In his distressing description of the inadequacies in contemporary efforts to deal with the problem of delinquency, the author does not realize one of the most distressing aspects. He advocates the establishment of child guidance clinics and extensive use of psychiatrists as an indispensable means to combat delinquency. But at the same time the author, who is psychoanalytically oriented, gives psychologic explanations which can hardly convince the public, the law makers and social institutions of the trustworthiness of psychiatric approaches. He considers delinquency "as compensative releases of unrequited sexual urges" (p. 103). He states that "the infant is all sex" (p. 102). The use of guns and knives is to the author a sign of obvious sexual aggression, because both are phallic symbols (p. 80). Such interpretations of dubious scientific validity are bound to defeat the author's plea for entrusting psychiatrists with the leadership in the fight against juvenile delinquency.

However, as a whole, the book is an excellent, clearly written and generally objective guide through the maze of conflicting reports and divergent recommendations on the subject.

**Eskimo Doctor.** By Aage Gilberg. Translated by Karin Elliott. Cloth Price, $3. Pp. 229, with photographs by the author. W. W. Norton & Co., Inc., 101 Fifth Ave., New York 3, 1948.

Prior to World War II, Greenland, the largest island in the world, was a Danish colony governed by the Royal Danish Trading Company in the interests of the Danish Crown Family. Its eastern, ice bound coast was practically uninhabited, while on the western shore as far north as Godhavn, on Disko Island, there were a number of provinces, each with a capital, governor, numerous artisans with their families and a contingent group of Eskimos, called in this book West Greenlanders, all of whom were in close contact with the Danish civilization in these outposts. Far to the north lived the Polar Eskimo in the region of Melville Bay, Cape York and Etah, until recent years without contact with or knowledge of the outside world, except for the brief visits of exploring expeditions. Access to Greenland was prohibited to all except those on company service, expeditions such as those of Commander MacMillan and Captain Bob Bartlet requiring permission obtained through the two departments of state.

Knud Rasmussen, son of a Danish governor and Eskimo mother, educated in Copenhagen as an ethnologist and anthropologist, totally ignored all regulations and established on Wolstenholm Sound, among the Polar Eskimos, a post named Thule which served successfully as a station for trading fur, ivory and Eskimo products, for a modest amount of enlightenment to the natives and as a base for his highly scientific Thule expeditions.

In this remote post, shortly after Rasmussen's death, a young Danish physician and his bride arrived to remain for a year. He, in his undergraduate days, had accompanied the Danish explorer Lauge Koch on two summer trips to the barren, uninhabited coast of Northeast Greenland, returning with great desire to visit the civilized west coast and to know the natives, particularly the Polar Eskimo.

The narration is a humorous, objective and realistic account of the character of these people, their social, domestic and economic problems, their maladies, superstitions, behavior under routine and critical circumstances, and their innate intelligence, this being entirely in accord with similar estimates by other of longer and more widespread experience.

His sledge trips by dog team in the long winter night to distant points are well told and without undue emphasis, and his portrayal of the Polar Eskimo as a jovial, fearless, kindly and friendly being explains his desire to return. The prevalent diseases, particularly those to which the Eskimos have acquired no racial or individual immunity, such as tuberculosis, with frequent meningitis, and the common childhood diseases of measles, whooping cough and scarlet fever, formerly unknown in the Far North, though prevalent in Southern Greenland as the result of frequent interchange of Danish residents, are at present treated at Thule, because of availability of sulphonamide drugs and other antibiotics, probably as effectively as in many areas in this country.

**Recent Advances in Obstetrics and Gynæcology.** By Aleck W. Bourne, M.A., M.B., B.Ch., *Obstetric Surgeon to St. Mary's Hospital, London* and Leslie H. Williams, M.D., M.S., F.R.C.S., Obstetric Surgeon to In-Patients, St. Mary's Hospital. Seventh edition. Fabrikoid. Price, $6. Pp. 326, with 85 illustrations. The Blakiston Co., 1012 Walnut St., Philadelphia 5, 1948.

In the last twenty-two years, seven editions of this book have appeared. Ten chapters are devoted to obstetrics and six to gynecology. At the end of each chapter is a list of the references which are abstracted and discussed by the authors. The obstetric subjects chosen are: nutrition in pregnancy and fetal development, weight changes and water retention in pregnancy, the anaemias of pregnancy (by L. J. Davis), anesthesia and analgesia in obstetrics, penicillin in obstetrics, lactation, vitamin K and hemorrhagic disease of the newborn, erythroblastosis, stillbirth and neonatal death and radiology in obstetrics (by E. Rohan Williams).

The gynecologic subjects are: cancer of the cervix uteri, stress incontinence, sympathectomy, penicillin in gynecology, radiologic investigation and diagnosis in gynecology (by E. Rohan Williams) and roentgen therapy in gynecology (by W. M. Levitt). The authors not only have abstracted many articles dealing with these subjects but also have discussed the merits of the articles. They have accomplished their task admirably because the sixteen subjects are well chosen and thoroughly analyzed. The book should prove to be useful to all obstetricians and gynecologists.

**Atlas of Practical Incisions and Some Operative Procedures.** By Oliver C. Cox, M.D. Drawings by Garnet W. Jex; Photographs by John W. McGuire. Cloth. Price, $3. Pp. 85, with 61 plates. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1947.

The author attempts to justify the small well placed incision in surgery. A number of photographs show the desired cosmetic effect and a few incisions are illustrated. Certainly, the cosmetic effect should be a secondary consideration. It does not seem possible to expose adequately the biliary ducts by the incision shown. A fine appendectomy scar is not necessarily the hallmark of surgical competency. This book adds little to medical literature except to show that a fine scar is attainable.

**Lehrbuch der Augenheilkunde.** Herausgegeben von M. Amsler, et al. Unter Mitarbeit von J. Babel, et al. Cloth. Price, 85 Swiss francs. Pp. 858, with 342 illustrations. S. Karger, Basel, Switzerland, 1948.

In the introduction to this large volume the authors give as the prime reason for this textbook in German by Swiss ophthalmologists the fact that because of the second World War, such an up-to-date text could not be published by German authorities. Many of these same Swiss ophthalmologists have published much in the literature. Brückner, Amsler and Vogt, now deceased, have written textbooks. Vogt's work with the slitlamp while head of the department at the University of Zurich is basic and world renowned.

The textbook follows the usual pattern with chapters on methods of examination, diseases of the various ocular tissues, anamolies, injuries, etc.

Many of the illustrations are of outmoded instruments; others are foreign to English-speaking ophthalmologists. The illustrations of anatomy and optic pathways are unusually fine. The index is good but there is no reference index. The authors should be given an E for effort in publishing this book during such trying times, but in general it is not up to the standard of previous textbooks in German. Undoubtedly improvement will be made if a second edition is forthcoming.

**L'oeuvre scientifique de Fr. J. Rainer.** I: Neurologie végétative. II. Structure fonctionnelle. III. Anthropologie, morphologie (varia), bibliographie. Paper. Pp. 57; 154; 121, with 75; 115; 105 illustrations. Monitorul oficial şi Imprimeriile Statului, Imprimeria natională, Bucharest, 1945.

These three volumes represent the collected publications of the author published posthumously by the Romanian Academy in French. Volume I contains papers on the autonomic nervous system, including the thoracic sympathetic nerves, cardiac nerves, nervi erigentes and innervation of the arteries. Plates illustrating cardiac nerves and the sympathetic and parasympathetic nerves of the neck and chest are excellent. Volume II relates to functional morphology of structures including the dura mater, periosteum, face, pelvis, vertebral column, pericardium and pacinian corpuscle. Volume III is a miscellaneous assortment. Papers dealing with variations in the hepatic fissures, genesis and structure of elastic fibers, variations in the coracobrachialis and biceps brachii muscles, innervation of the abdominal wall and the lymphatic system of the heart are included. Plates of lymphatic vessels of the heart are noteworthy.

Anatomists and others interested in special topics treated in these works will find them useful.

**Nouveaux traitements de l'insuffisance hépatique.** Par Jean Cottet et Nicolas Dobo. Préface de M. le Professor E. Chabrol. Paper. Price, 375 francs. Pp. 210. Editions médicales Flammarion, 22 rue du Vaugirard, Paris, 6^e^, 1948.

This book reviews the present knowledge and current hypotheses governing the treatment ,and prevention of hepatic disease and hepatic failure. After a short historical review, the rationale, indications and contraindications and methods of the different forms of treatment of hepatic insufficiency are discussed. This includes high carbohydrate diet with and without injections of insulin, administration of liver extracts, bile salt therapy, administration of sulfur (especially in the form of glutathione and methionine), and the use of the various vitamins and hormones. Another part deals with the physiopathologic basis and the practical use of the therapy with the different lipotropic substances and of the oral and parenteral high protein regimen. Special emphasis is given to therapeutic results in cirrhosis. The available literature is well and critically reviewed and an extensive bibliography makes the booklet valuable to the American reader. Many of the facts presented and the conclusions reached are based on American and also on British or German investigations.

**Pye's Surgical Handicraft: A Manual of Surgical Manipulations, Minor Surgery, and Other Matters Connected with the Work of Surgical Dressers, House Surgeons, and Practitioners.** Edited by Hamilton Bailey, F.R.C.S. Eng., Surgeon, Royal Northern Hospital, London. Fifteenth edition. Cloth. Price, $7. Pp. 668, with 789 illustrations. William Wood & Co., Mt. Royal & Guilford Aves., Baltimore 2, 1947.

This book attempts to educate house surgeons on practical technics in the hospital. It does not compare with similar books issued in this country. Some of the methods are primitive. The book is of little value for American interns or residents.

**Food, Nutrition and Health.** By E. V. McCollum, Ph.D., Sc.D., and J. Ernestine Becker, M.A. Sixth edition. Cloth. Price, $2. Pp. 146. The Authors, Gilman Hall, Johns Hopkins University, Baltimore 18, 1947.

This book presents the basic knowledge of nutrition in a concise simple manner. It is written for the public and may be recommended to the intelligent layman who desires to procure a sound foundation in food values and nutritional principles.

# Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

## SKIN TEST TECHNIC

**To the Editor:—I usually inject tetanus antitoxin for passive protection in two doses, 3 minims at once and the rest after half hour if there is no reaction. Is this method sufficient to prevent anaphylactic reaction? If not, how should the skin test be performed?**
**M.D., Illinois.**

ANSWER.—The following outline describes the cutaneous tests employed to determine the presence or absence of sensitivity to the serum employed; in the case of tetanus, usually horse serum.

*Cutaneous Tests*

| Technic | Remarks |
|---|---|
| A. Scratch test<br>1. Make 2 superficial scratches on front (volar) surface of either forearm<br>2. Apply a drop of 1:10 dilution (0.1 cc. serum in 9.9 cc. of isotonic NaCl solution) over upper scratch (use lower scratch as control)<br>3. If, after 15 to 20 minutes, no local or constitutional reaction occurs, proceed to the intracutaneous test, described under (4)<br>B. Intracutaneous test<br>4. Raise a tiny wheal (smallest amount of serum practicable) on the front (volar) aspect of either forearm<br>5. Use the following dilutions:<br>Presumptive positive sensitivity*: 1:10,000 dilution<br>Negative sensitivity*: 1:1,000 dilution<br>Under all circumstances: at 15 to 20 minute intervals, if preceding dilutions give negative readings, repeat tests in the order of the *next lower dilution: 1:1,000,* 1:100, 1:10 | 1. Positive local reaction: area of edema about 0.5 inch in diameter with erythema (like a wheal), with or without finger-like projections at circumference (pseudopodia); appears within 15 to 20 minutes<br>2. A negative reaction does not always *mean that it is safe to give serum*<br>3. A positive reaction does not always indicate that it is dangerous to give serum<br>4. But, when a positive reaction does prove to indicate clinical sensitivity, the sooner the reaction, and the greater its size, the greater is the likelihood of a constitutional (anaphylactic) reaction<br>5. The tests must be given each time serum is to be injected (may change from positive to negative or vice versa)<br>6. Constitutional reactions (various forms of "serum sickness") to skin tests are identical with those which follow injections of serum for prophylaxis or therapy; they may follow with either negative or positive skin reactions |

* *Presumptive diagnosis of serum sensitivity:* (*a*) presence of allergic complaints (hay fever, asthma, hives, food sensitivities, migraine, eczema, etc.) in the patient or relatives (past or present); (*b*) serum injections in the past (tetanus, diphtheria, pneumonia, etc.), without any reaction (early or late). Probable sensitivity: (*a*) skin reactions (or ophthalmic reactions) positive on previous occasions; (*b*) allergic complaints (sneezing, coughing, wheezing, burning eyes, stomach ache, hives, itching, headache, etc.) when around horses (if *horse serum is to be used*) or cows (if bovine serum is to be used). Positive sensitivity: (*a*) allergic difficulties from previous injections of horse serum; (*b*) constitutional (anaphylactic) reaction from cutaneous or ophthalmic tests for sensitivity; (*c*) constitutional reaction during present injections.

The following outline should be helpful in avoiding mild to fatal reactions to prophylactic and therapeutic doses of antitetanic serum:

1. Administer tetanus antitoxin only if essential.
   - (*a*) Are the indications present? Can care of the local lesion by itself be adequate?
   - (*b*) Can tetanus toxoid be used in place of tetanus antitoxin? A booster dose of 0.1 cc. of either fluid or alum-precipitated toxoid is adequate even though tetanus toxoid was injected five to six years previously. In certain instances (delay, strong local lesions, hemorrhage) a booster dose of tetanus toxoid should be supplemented with 10,000 units of tetanus antitoxin.
2. Determine whether the patient is sensitive to horse serum (history, physical examination, skin tests: already presented in the preceding paragraphs).
3. Under all circumstances, adopt the following measures to avoid reactions to tetanus antitoxin:
   - (*a*) Administer an appropriate antihistamine compound, in sufficient quantity, orally or parenterally (when feasible), at least thirty minutes before injecting tetanus antitoxin (no matter what the history, physical examination or tests reveal).
   - (*b*) A syringe containing 2 cc. of epinephrine hydrochloride (1:1,000) should be immediately available to treat any acute serum reactions.
   - (*c*) A syringe containing 5 cc. of diphenhydramine hydrochloride (for intravenous injection) should be immediately available to assist in the control of acute serum reactions (1 to 2 cc. to be injected, and repeated as necessary).
   - (*d*) In the presence of a probable or positive diagnosis of serum sensitivity, the patient should be hospitalized for at least twenty-four to forty-eight hours.
   - (*e*) All patients who receive tetanus antitoxin (independent of history, physical examination or tests) should be given one of the antihistamine compounds for fourteen days to avoid all forms of serum sickness.
   - (*f*) In the presence of a presumptive, probable, or positive diagnosis of serum sensitivity, in addition to antihistamine therapy, hospitalization and epinephrine hydrochloride (as needed), employ the following method of hyposensitization:

| Dilution of Antitoxin | Volume | Route | Interval and Remarks |
|---|---|---|---|
| 1:1,000 | 0.1<br>0.2<br>0.3<br>0.5<br>1.0 | Subcutaneous | *15 minutes* between each injection of antitoxin |
| 1:100 | 0.1<br>0.2<br>0.5<br>1.0 | Subcutaneous | In case of reactions during course of injections, treat reactions, continue dose preceding reaction, gradually increase dose if further difficulty is not encountered |
| *1:10* | 0.1<br>0.2<br>0.5<br>1.0 | Subcutaneous | In case of reactions, increase intervals between injections to 30 minutes |
| None (undiluted) | 0.1<br>0.2<br>0.5<br>1.0<br>Rest of serum as one dose intramuscularly | Subcutaneous | |

   - (*g*) At an appropriate interval after serum prophylaxis (four to six weeks after the now recommended dose of 5,000 to 10,000 units) inject 0.5 cc. of alum-precipitated tetanus toxoid (use the newly marked purified products) and repeat dose in one month. Thus, *on subsequent occasions, tetanus toxoid may* be employed in the form of booster doses in place of antitetanic serum.

## TUBERCULOSIS AND COCCIDIOIDOMYCOSIS

**To the Editor:—Does a person who has recovered from severe pulmonary tuberculosis have increased susceptibility to pulmonary forms of coccidioidomycosis or histoplasmosis? May susceptibility be increased because of scarring from the tuberculosis? Are any parts of the United States free from these infections or are known endemic areas localized?**
**D. M. Nelson, M.D., Detroit.**

ANSWER.—Persons who have recovered from severe pulmonary tuberculosis have not been shown to have increased susceptibility to coccidioidomycosis or histoplasmosis. Occasionally after tuberculosis a residual bronchiectasis occurs, but this of itself should not predispose to these other specific infections.

Coccidioidomycosis has been found in practically every part of the United States in persons who have not left these areas. There are certain parts of the country where the disease has a high incidence; namely, the desert regions of the West and the valley regions of California. The infection is common in these areas and rare in other parts of the country.

## PREPARATION OF SKELETON

**To the Editor:—How can I bleach and dry the bones of a human skeleton?**
**Richard C. Batt, M.D., Glens Falls, New York.**

ANSWER.—Since the query refers merely to bleaching and drying of bones in the preparation of a human skeleton, nothing will be said here about the maceration, cleaning and degreasing of bones.

If carbon tetrachloride has been used in the degreasing process, the bones must be thoroughly dry before bleaching. Dry not too rapidly (for bones will crack—long bones, lengthwise—if oven or hot sun is used in drying). Then place the dry bones in hydrogen peroxide and water (2 or 3 parts of water and 1 part of hydrogen peroxide) for bleaching. The length of time required for this process will vary (hours or days), depending on the thickness or character of the bones and the potency of the hydrogen peroxide. When the bones have attained the desired whiteness, dry them (again not too rapidly).

## SPONTANEOUS PNEUMOTHORAX

*To the Editor:*—A man, aged 30, has recently had his sixth spontaneous pneumothorax in two years. Three have involved the right side and three the left side. On the last occasion a partial collapse of the upper lobe of the left lung was demonstrated by roentgen examination of the chest. Evidence of active or healed tuberculosis was absent. Except for the aforesaid finding physical examination did not reveal any significant abnormality. Complete blood counts, serologic reactions, sedimentation rate and urine were normal. The patient's brother has had advanced pulmonary tuberculosis, but he has not had contact with his brother in the last ten years. The patient's occupation requires moderately strenuous exertion, but several of the attacks have occurred at rest. Symptoms consist of a moderately severe dull aching pain (described as similar to "indigestion") and slight dyspnea. Each attack necessitates several weeks of convalescence, and the patient is anxious that something be done in an effort to prevent recurrences. I have considered two courses of action: (1) a course of treatment with streptomycin, chiefly because of the positive family history and the fact that in a certain proportion of such cases clinical tuberculosis eventually develops; (2) injection of an irritating substance into the pleural space in an effort to produce an adhesive pleuritis. Would a concentrated solution of penicillin produce such an effect? This second method seems too drastic to me. I would appreciate advice concerning the handling of this patient.

Ben F. Roach, M.D., Lexington, Ky.

Answer.—Spontaneous collapse of a lung is a rather unusual event, rarely happening more than once in the same person, and in most cases is the result of rupture of a subpleural bleb or cyst. Repeated spontaneous collapse of one or both lungs may occur with sufficient frequency to warrant some type of therapy designed to obliterate the pleural space, thereby preventing further recurrence of the difficulty. Should spontaneous pneumothorax be due to tuberculosis, however, specific therapy for the underlying pathologic condition should be obtained. In order to rule out active tuberculosis in a patient with spontaneous pneumothorax, roentgenograms of the chest should be taken before and during reexpansion of the lung in an effort to demonstrate abnormal shadows. Repeatedly negative roentgenograms and/or several successive negative guinea pig inoculations with gastric samples should adequately rule out the presence of an active tuberculous focus. If the disease has been excluded at the time, the patient is no likelier to contract tuberculosis later than the average patient. (Cohen, S., and Kinsman, J. M.: Nontraumatic Spontaneous Pneumothorax Among Military Personnel, *New England J. Med.* 235:461 [Sept. 26] 1946). Because of the toxic properties of streptomycin and the easily developed resistance to the drug, even a prophylactic course of this medication would be definitely contraindicated in the case cited. After tuberculosis has been ruled out in a case of repeated, incapacitating spontaneous pneumothorax, as in the patient mentioned, production of an adhesive pleuritis to obliterate the pleural space is probably indicated. John D. Steele (*Am. Rev. Tuberc.* 56:299 [Oct.] 1947) recommended insufflation of 8 to 10 Gm. of sterile talc through a thoracoscope as the most successful means of obtaining satisfactory results. Other methods of producing adhesive pleuritis have not yielded such uniformly good pleural symphysis.

## PNEUMATIC TOURNIQUET

*To the Editor:*—What is the accepted method of using a pneumatic tourniquet to produce a bloodless field in surgery of the extremities? What is the proper inflation pressure and how long can the tourniquet be safely applied?

M.D., New York.

Answer.—A pneumatic tourniquet creates a wide even pressure and is quickly inflated and deflated. It may be operated by a hand or foot pump. For the upper extremity an ordinary blood pressure cuff is sufficient with pressures well above the systolic blood pressure of the patient. For the lower extremity, the Bird-Campbell tourniquet is useful and is inflated to 15 pounds of pressure. It is wise to deflate the cuff every thirty to forty-five minutes to avoid ischemic neuropathy of the peripheral nerves. The tourniquets are obtainable through larger instrument dealers.

## INFORMING THE PATIENT WITH CANCER

*To the Editor:*—In view of the present trend toward making the public "cancer conscious," what should the physician's feeling be in regard to revealing a diagnosis of cancer to the patient? Will not a more enlightened patient be better able to cooperate with the physician if he is told the true state of affairs?

Russell E. Schlitter, M.D., Highwood, Ill.

Answer.—There can be no question about the vital advantage to the patient with cancer of cooperating intelligently with his physician. To do so, the patient must understand the situation. Consequently, whenever it is possible without disadvantage to the patient the diagnosis of cancer should be discussed with him as tactfully and optimistically as possible. If exact information has to be withheld for some special reason, the physician should establish confidential relations with some suitable member of the patient's family.

## TUBERCULIN PATCH TESTS

*To the Editor:*—Of what significance is a positive reaction to a patch test for tuberculosis in an adult?

M.D., New York.

Answer.—A reaction to the patch tuberculin test in an adult has the same significance as a reaction to the epidermal (Pirquet), the intracutaneous (Mantoux) or any other method of administering the tuberculin test. A tuberculin reaction in an adult has the same significance as in a child; namely, that at least primary lesions are present and that they probably contain living tubercle bacilli. If a reaction occurs the first time that an adult is tested one is unable to determine how long the primary lesions (tuberculous infection) have been present. Many adults now receive tuberculin tests periodically as long as there is no reaction. If a reaction occurs in a person who, six months or a year before, was a nonreactor, one is certain that there has been an effective contact with a contagious case of tuberculosis in the interim. This is as significant as when a child of 6 months to 1 year is found to be a reactor from the standpoint of dating the exposure and the duration of the disease.

After tubercle bacilli first invade the body there is an interval of three to seven weeks before the tissues are so sensitized that a reaction is elicited by the patch or any other method of administering tuberculin. This is the preallergic stage of the disease. When allergy first appears it soon reaches such a high level as to be detectable by an exceedingly small amount of tuberculin. However, if no exogenous or endogenous reinfection occurs it wanes until it can be elicited only by larger doses of tuberculin such as 1 mg. In some cases it even sinks below this level, and if all the tubercle bacilli die in the body, which probably happens more frequently than was formerly believed, allergy completely disappears, so that there is no response to 5 or even 10 mg. of tuberculin.

The adult who reacts even mildly to the patch test still has a reasonably high degree of allergy. When an intense reaction follows the administration of the patch test it probably means that the primary disease developed relatively recently or that the person is being reinfected endogenously or exogenously.

Inasmuch as only living tubercle bacilli result in allergy elicited by the tuberculin test and since only in persons whose bodies contain tubercle bacilli does clinical tuberculosis develop, it is exceedingly important that every adult reactor to the patch or any other method of administering tuberculin be examined at once to determine whether lesions have become so gross that their locations can be detected by such procedures as roentgen inspection of the chest; if none is found the person should be reexamined periodically, as such lesions may be in evidence at any subsequent time as long as the allergy persists. The old belief, once a reactor, always a reactor, must be abandoned in the light of present evidence. Therefore the adult who reacts to tuberculin should have the test repeated every three to five years to determine whether the sensitivity is waning or has completely disappeared.

The rapidity with which tubercle bacilli die in human bodies varies greatly. In some apparently only a few years are required; in others, much longer, and in a considerable number the organisms live and retain their virulence over decades or the entire lifetime.

It is not known how long allergy lingers after all tubercle bacilli die in a human body. Some believe it is only a month or so, while others think that it may persist up to two years. In any event, there is no way to determine from the tuberculin reaction during this short period that all bacilli have died. Therefore, the safe course is to regard a tuberculin reaction as indicative of the presence of living tubercle bacilli.

There is still a belief that all adults have primary tuberculosis (tuberculous infection) and therefore would react to tuberculin. While this may have been true here a few decades ago and still is in some parts of the world, such a belief is now obsolete in most parts of the United States. Controlling tuberculosis in domestic animals, isolating large numbers of contagious cases in man in hospitals and sanatoriums and adequate treatment of many others have protected large numbers of children and adults from becoming infected. These, together with those in whom infections die, constitute the majority of adults in many places. Jordan reported the tuberculin testing of nearly 3,698 adults ranging from 21 to 71 years, of whom only 21.6 per cent reacted to tuberculin. Therefore it is as important to test adults as children, and the significance of the reaction is the same in adulthood as in childhood.

## "LIPAN"

*To the Editor:*—Please furnish information about "lipan" in treatment of psoriasis.

W. W. Sherwood, M.D., Los Angeles.

Answer.—"Lipan," according to the labeling, is a tablet containing undeclared amounts of powdered pancreas, vitamin $B_1$, vitamin D and sodium bicarbonate. Its use in psoriasis is based on the doubtful theory that this disease is due to a defect in lipid metabolism. Presumably the powdered pancreas furnishes a source of lipase.

As pointed out by Beckman (Treatment in General Practice, Philadelphia, W. B. Saunders Company, 1945) psoriasis "will respond at times to almost anything or again to nothing at all." Madden (J. A. M. A. **115**:588, 1940) who treated 112 patients with a large variety of agents, including vitamins D and $B_1$ did not observe impressive results. Schonberg (*Ohio State M. J.* **42**:254 [March] 1946) stated that the various types of parenteral and enteral medication employed in his series of 207 cases were not of apparent value.

Promoters of "lipan" stress its value in correcting faulty fat metabolism. They refer to the work of Dragstedt with lipocaic, a similar substance. The report of the Council on Pharmacy and Chemistry, "The Present Status of Lipocaic" (J. A. M. A. **115**:1454 [Oct. 26] 1940), asserted that conclusive evidence of the value of lipocaic in psoriasis is lacking. This view remains unaltered.

Competent dermatologists who have thoroughly investigated the relation of fat metabolism to psoriasis conclude that such relationship does not exist. "Lipan" is apparently offered on the basis of an untenable theory.

## PTEROYLTRIGLUTAMIC ACID

*To the Editor:*—Please give information on the use of "teropterin" (pteroyltriglutamic acid) in cancers involving the esophagus.

M. A. Johnson, M.D., Plainview, Neb.

Answer.—"Teropterin" (pteroyltriglutamic acid) is a folic acid derivative and has been found to inhibit and cause regression of spontaneous cancers of the breast in mice. The effectiveness of the drug on carcinoma of the esophagus, or of other parts of the human body, is questionable. Conclusive evidence has not yet developed that it is effective in the treatment of carcinoma. Pteroyltriglutamic acid may reduce pain and improve the sense of well-being in cases of esophageal carcinoma, but it cannot be used as a substitute for the usual methods of treatment; i. e., surgical extirpation, maintenance of nutrition, radiation therapy and measures contributing to comfort. At present experience with the drug is too limited to indicate definitely that it will be a valuable adjunct in the treatment of carcinoma. Dosage has been from 20 to 50 mg. a day, administered intramuscularly. No local or systemic reactions have been observed.

Attention is called to the Report of the Council on Pharmacy and Chemistry (J. A. M. A. **137**:699 [June 19] 1948), which, on the basis of the available evidence, concluded that beneficial effects from "teropterin" therapy of cancer had not been demonstrated.

## FETAL INJURY

*To the Editor:*—Is there a danger of an infant's being born deformed or injured physically or mentally if an unsuccessful attempt was made at termination of the conception?

M.D., Wisconsin.

Answer.—The question is not clear. If by "termination of the conception" is meant the end of pregnancy then unsuccessful attempts to start labor cannot produce deformity of the baby. Likewise, unless there is direct injury to the baby's head by some mechanical means there will be no effects on the brain to produce mental disturbances.

If the query implies an unsuccessful attempt to empty the uterus immediately after conception takes place in order to produce an abortion, there is a possibility that harm may result in the fetus. Since coitus and fertilization occur within twenty-four hours, a curettement a day or two after this will secure only endomentrium and not decidua and certainly not products of conception. If there is no endometrial lining left to form decidua, it is almost certain that the fertilized ovum will not implant itself in the uterus but will perish. If there is some small amount of endometrium left in the uterus and it is defective for one reason or another and the ovum is implanted on this, the developing ovum can become abnormal because of faulty environment.

## COTTON THREAD SUTURES

*To the Editor:*—Can ordinary thread as it is bought in 5 and 10 cent stores (cotton) be used for minor operations?

M.D., Tennessee.

Answer.—Ordinary cotton or silk thread such as is purchased in a dry goods store can be satisfactorily used for major or minor surgical operations. This thread can be sterilized and, except for some minor properties, is just as satisfactory as that supplied by the surgical supply houses.

## SYPHILIS

*To the Editor:*—In the Journal, August 21, page 1567, appears a query regarding management of a young man and a young woman, both of whom presumably have syphilis, with an answer to which I take issue.

On the basis of the inadequate information supplied, it is probable that the young man does have syphilis, although the duration of his infection cannot be determined from the information given. The reply correctly enquires whether this patient presents any physical evidence suggestive of syphilis and implies, although it does not definitely say so, that, if such physical evidence is present, further treatment may be desirable depending on the type of clinical abnormality. To this reply should be added the statement that further treatment, if any, cannot be planned without knowledge as to the patient's physical status. The reply also correctly suggests that the spinal fluid should be examined (including a Wassermann test). To this should be added that the spinal fluid examination should also include a cell count, quantitative protein determination, quantitatively titered complement fixation (not flocculation) test, and a colloidal test. The reply does not state what should be done if the spinal fluid is now normal. Should this prove to be the case and should the patient have no physical evidence of syphilis, he has now had enough treatment and none further need be given, regardless of the fact that he still has a "strongly positive" blood reaction.

The reply further indicates that if the spinal fluid is "positive," the patient should be given fever treatment and "simultaneous intravenous penicillin." This is definitely erroneous information. Whether fever treatment is necessary depends not only on whether the spinal fluid is "positive" but on the general pattern of spinal fluid abnormalities, if any are present. If the spinal fluid shows maximal abnormalities of the type usually associated with dementia paralytica (the so-called paretic formula), fever treatment *may* be desirable. If the spinal fluid abnormalities are less in degree than this, fever treatment is almost certainly unnecessary and penicillin, intramuscularly administered, total dose 10,000,000 to 20,000,000 units, is almost certainly entirely adequate. The intravenous use of penicillin in the treatment of syphilis has long since been abandoned.

As to the young woman in question, there is substantial doubt as to whether she has syphilis and, if so, whether she acquired it from the young man. The enquirer apparently treated this young woman on the sole ground that she had become pregnant by a man who had syphilis and was without any evidence of syphilis herself, since no data are given as to her examinations, clinical or laboratory, before treatment was administered to her. The fact that she has after treatment a "slightly positive" blood reaction suggests that she may have had a syphilitic infection, but, as the reply properly indicates, does not verify the fact, since she may have a biologic false positive serologic reaction. Nevertheless, her spinal fluid also should be examined although not until after delivery. No further treatment is necessary during her pregnancy and, if her spinal fluid and physical condition are normal, no further treatment need be given after delivery.

Assuming in each case physical normality and normal spinal fluids, both the male and female patient should be followed indefinitely in the manner frequently publicized for the followup of patients with early syphilis, most recently in the Report of the Syphilis Study Section to the Council on Pharmacy and Chemistry, "Penicillin in the Treatment of Syphilis," The Journal, March 27, page 873.

In all probability, the enquirer has gained nothing by giving the patients neoarsphenamine and bismuth in addition to 3,000,000 units of penicillin.

The reply states that the infant should be followed with a serologic test on the cord blood and "a monthly blood test" but does not indicate for how long this should be continued. This question is also discussed in the report of the Syphilis Study Section already referred to.

The enquirer states, "By law in Ohio they [this couple] are denied a marriage license." The reply suggests that after the enquirer has carried out all of the suggestions made in the reply, the marriage certificate might be issued. In many states, presumably including Ohio, a positive blood reaction in one or both applicants for marriage is not a bar to marriage unless the applicant is infectious. When both applicants for a marriage license have syphilis, it would be a reductio ad absurdum to withhold a marriage license. No pre-marital blood testing law adopted in any state is designed to prevent the marriage of a person who has syphilis but instead only to minimize the spread of syphilis in marriage. Almost certainly this young couple could have been married with medical and legal consent at any time they wished and there is absolutely no reason to defer marriage now. On the contrary, and for the sake of legitimization of the child, and assuming of course that the couple wish to marry, they may do so at once.

Finally, the reply to this enquiry contains the suggestion that treatment given to the girl should be modified if the man has a positive spinal fluid reaction. This is the first time, to my knowledge, that it has been proposed that one patient be treated in a certain manner because a different patient had something the matter with him. It should seem obvious that the treatment given to the girl depends on what the matter is with the girl, not on what the matter is with the man.

J. E. Moore, M.D., Baltimore.

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## DIAGNOSIS OF GASTRIC NEOPLASMS

### By Cytologic Examination of Gastric Secretions

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The high incidence of gastric carcinoma together with its extremely low survival rate[1] provides adequate justification for the search and evaluation of new methods of diagnosis. This is particularly rational in view of the often repeated opinion that improvement in the end result of gastric carcinoma can be expected only from earlier diagnosis of the lesions.[2]

In 1946 Papanicolaou[3] reported on the diagnostic value of exfoliated cells from cancerous tissues. Although the technic which he discussed was applied largely to the diagnosis of neoplasms in the female genital tract, it was also utilized as an aid in the diagnosis of neoplasms of other systems, including the stomach. Since this early report the same observer has reported more extensive experiences in the diagnosis of gastric neoplasms by the examination of cells from the gastric juice.[4]

His results compared well with those of sputum and urine except for a somewhat higher percentage of false negative results. The increased number of false negative results was attributed to (1) rapid deterioration of cells in the gastric fluid unless the specimen was fixed immediately, (2) the absence of exfoliation in the relatively large group of scirrhous carcinomas which as a rule do not reach the mucosal surface and (3) the frequent presence of swallowed foreign cells from nasal, pharyngeal, tracheal and esophageal mucosae and of undigested foreign particles. These foreign elements tend to confuse the picture and to make the recognition of neoplastic cells more difficult.

Hunter and Richardson[5] modified the Papanicolaou procedure in that embedding and sectioning of the sediment from gastric juice were employed instead of the usual procedure of smearing the sediment. They claimed better results with this procedure, but offered no statistical data in regard to their results. More recently Meigs and his co-workers[6] reported their results employing the procedure of Papanicolaou. Of the 50 cases in which gastric aspiration was carried out, neoplasms were proved to be present in 24. The smear was positive for neoplastic cells in 15 instances. In 1 case there was a false positive result, since no neoplasm was found at operation, while in 2 other instances with positive smears no neoplasm was found grossly, but histologic examination revealed preinvasive carcinoma. These authors emphasized the value of the Papanicolaou procedure in detecting early gastric neoplasms.

Since July 1947, we have employed the Papanicolaou procedure in the study of gastric sediment. The microscopic examinations of the cells contained in the fasting gastric contents of 278 patients were carried out in an effort to evaluate this technic as an aid in the diagnosis of gastric carcinoma. In some cases more than one aspiration was performed on a single patient, so that altogether 326 aspirations were done. The group of patients studied were selected, in view of the fact that they all had gastrointestinal complaints. No attempt was made to use the technic as a screening or survey procedure. As nearly as possible, the technic advised by Papanicolaou[4a] was used throughout. After an overnight fast, the gastric contents were aspirated through a Levine tube, and to this material an equal volume of 95 per cent alcohol was added immediately. After centrifugation, the clear layer was discarded and the sediment was smeared and fixed. The slides were run through the usual solutions, strained and prepared for microscopic examination. This procedure was finally followed in the vast majority of the cases. This technic was compared to the results in which aspiration was carried out after alcohol or histamine stimulation of gastric juice. In some instances the stomach was washed out with 5 per cent sodium bicarbonate. We found little difference in either the preservation of gastric cells or their straining qualities.

All slides were studied by the same pathologist, one of us (H. C. B.), who found that, while some positive slides can be evaluated quickly, approximately twenty minutes are necessary before a negative preparation can be safely discarded. In some cases suspicious, but

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Miss Audrey Green and Miss Bernice Rochon gave technical assistance.

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Read before the Section on Gastro-Enterology and Proctology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

[1] The Stomach, in Pack, G. T., and Livingston, E. M.: Treatment of Cancer and Allied Diseases, New York, Paul B. Hoeber, Inc., 1940, vol. 2. Walters, W.; Gray, H. K., and Priestly, J. T.: Carcinoma and Other Malignant Lesions of the Stomach, Philadelphia, W. B. Saunders Company, 1942.

[2] State, D.; Varco, R. L., and Wangensteen, O. H.: An Attempt to Identify Likely Precursors of Gastric Cancer, J. Nat. Cancer Inst. **7**: 379, 1947.

[3] Papanicolaou, G. N.: Diagnostic Value of Exfoliated Cells from Cancerous Tissues, J. A. M. A. **131**: 372 (June 1) 1946.

[4] (*a*) Papanicolaou, G. N., and Cooper, W. A.: The Cytology of Gastric Fluid in the Diagnosis of Carcinoma of The Stomach, J. Nat. Cancer Inst. **7**: 357, 1947. (*b*) Papanicolaou, G. N.: The Cell Smear Method of Diagnosing Cancer, Am. J. Pub. Health **38**: 202, 1948.

[5] Hunter, W. C., and Richardson, H. L.: Cytological Recognition of Cancer in Exfoliated Material from Various Sources: Useful Modification of Papanicolaou Technique, Surg., Gynec. & Obst. **85**: 275, 1947.

[6] Fremont-Smith, M.; Graham, R. M., and Meigs, J. V.: The Cytologic Method in the Diagnosis of Cancer, New England J. Med. **238**: 179, 1948.

nonspecific, cellular changes make an absolute diagnosis by this method impossible, despite an infinitely prolonged period of study. The pathologist has repeatedly emphasized the fact that there is no single criterion of malignancy in the individual cell which may not occur in a normal cell and that the most dependable sign of malignancy, invasion of surrounding tissue, is not available in this type of examination.

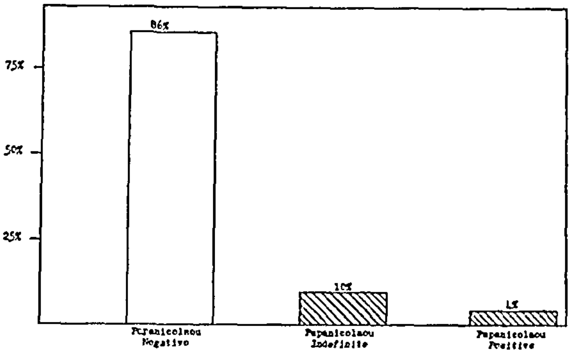

Fig. 1.—Results of cytologic study of gastric juice from patients in whom there was no clinical evidence of carcinoma of the stomach (one hundred and ninety-two aspirations).

Our effort to evaluate the procedure has consisted of comparing the diagnosis made by the microscopic study of the cells structure of the gastric juice with the clinical diagnosis. The clinical diagnosis is based on a thorough study of each case by the usual applicable methods, including the history, physical examination, roentgenography, gastroscopy and histologic study of material obtained at laparotomy or biopsy. This series includes only those cases in which it is felt that a final diagnosis has been established. Of the three hundred and twenty-six smears examined, only two hundred and ninety-six were satisfactory. In the other thirty, there was so much foreign material or the cells were in such a poor state of preparation that the histologic evaluation of the cells was impossible. The remaining material (two hundred and ninety-six smears) can be divided into four general categories.

## GENERAL CATEGORIES

*Group I: Clinically No Neoplasm.*—The first group consists of one hundred and ninety-two aspirations in which full clinical evaluation disclosed no evidence of carcinoma of the stomach. In this group 86 per cent of the aspirations were thought to contain no malignant cells. In 10 per cent the results of the cytologic examinations were indefinite, while 4 per cent were falsely reported as positive for carcinoma (fig. 1).

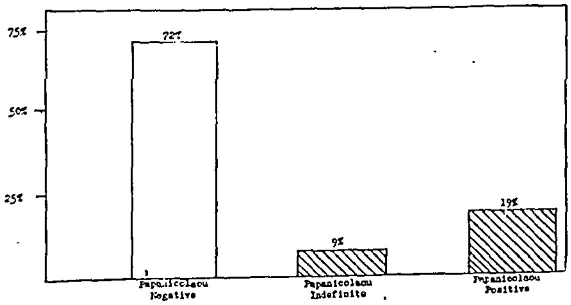

Fig. 2.—Results in patients with no histologic evidence of carcinoma of the stomach (forty-three aspirations).

*Group II: No Histologic Evidence of Neoplasm.*—A second, and possibly more reliable group, is furnished by the fact that forty-three gastric samples were obtained from patients who were subsequently subjected to laparotomy (fig. 2).

In all of these cases, examination in the Pathology Department of part or all of the stomach revealed no evidence of carcinoma. While it is possible that lesions not evident grossly may have been missed, this is not likely in a significant number. In this group, microscopic study of the fasting gastric contents revealed only normal cells in 72 per cent. No definite conclusion could be drawn in 9 per cent of the aspirations, while in 19 per cent of the slides studied it was felt that malignant cells were identified.

*Group III: Clinically Neoplasm.*—Twenty gastric aspirations were done on patients in whom a final diagnosis of gastric carcinoma was made, in which no histologic confirmation of the diagnosis was obtained (fig. 3). Despite the clinical picture, no malignant cells were found in the fasting gastric contents in 12 (60 per cent) of these cases, while a positive report was made in only 8 (40 per cent).

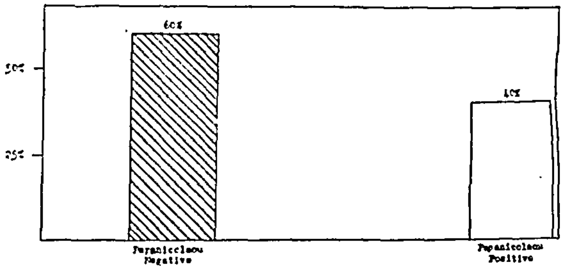

Fig. 3.—Results in patients with a clinical diagnosis of carcinoma of the stomach without histologic confirmation (twenty aspirations).

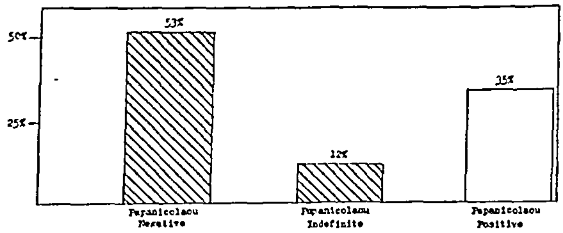

Fig. 4.—Results in patients with histologic diagnosis of carcinoma of the stomach (forty-one aspirations).

*Group IV: Histologically Neoplasm.*—We had an opportunity on forty-one occasions to examine the cell structure of the fasting gastric contents of patients who were later proved to have gastric carcinoma by laparotomy (fig. 4). No recognized malignant cells were encountered in 22 cases (53 per cent). Malignant cells were found in 14 cases (35 per cent), while in 5 cases (12 per cent) no definite conclusion could be reached.

By ignoring the previously considered clinical groups and tabulating the results of all gastric aspirations, one can gain a more complete picture of the results (fig. 5). We found that in 59 per cent of all the aspirations studied and reported as positive, the cytologic observations were confirmed by clinical and conventional histologic study. On the other hand, when the aspirations were reported as negative, results in 85 per cent of them coincided with the results in other studies.

In all those cases in which a final diagnosis of carcinoma of the stomach was made, the result in the aspiration technic was correct in 36 per cent (fig. 6). This may be said to represent the sensitivity of the procedure. In contrast, specificity is reflected by the fact that in all those cases in which no carcinoma was found, the result of the gastric aspiration technic was correct in 87 per cent.

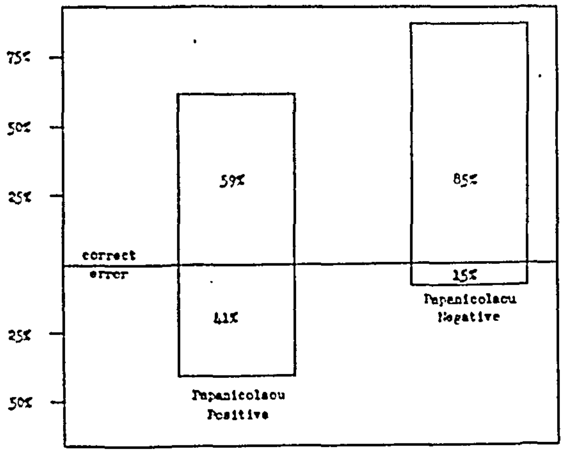

Fig. 5.—Results of gastric cytologic study, on the basis of conclusions drawn.

On some occasions, the cytologic study of the fasting gastric contents has proved itself of value in indicating the need for exhaustive clinical study. For example, the roentgenogram of the stomach of a 62 year old white man (fig. 7), who entered the hospital because of vague upper abdominal discomfort of a nonspecific character, showed some angulation of the lesser curvature, with retention, but the absence of a filling defect precluded the diagnosis of neoplasm. A second roentgenogram failed to clarify the situation. However, microscopic examination of the fasting gastric contents revealed definite malignant cells. The diagnosis of gastric carcinoma was then substantiated gastroscopically and proved at laparotomy.

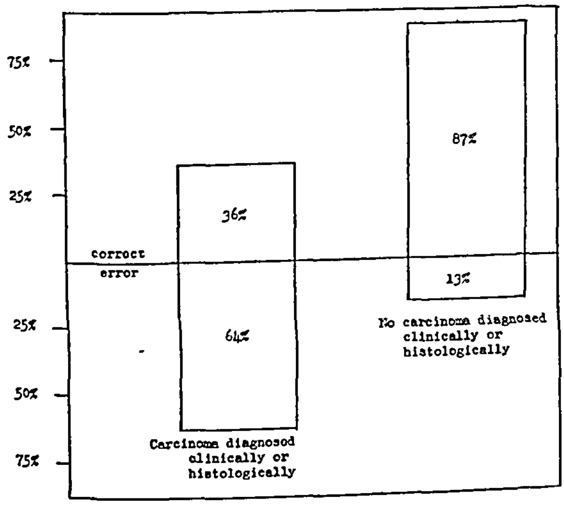

Fig. 6.—Results of clinical studies, on the basis of the conclusions drawn.

COMMENT

The results of the observations to date do not warrant a final conclusion. This series is too small to furnish reliable statistics. The passage of time may well modify the results. Further experience by the pathologist is certain to have some effect. Some of our diagnostic criteria which have been used as a yardstick in judging the technic may prove to have been in error in some cases. This is particularly likely in a large group of cases in which there is no histologic control. A close analysis of our data indicates that actually it reflects only the gross efficacy of the cytologic method for the diagnosis of gastric neoplasm.

There are several factors in addition to those[4b] which were reported that modify the results and cannot be considered actual inherent features of the method itself. First of all, the accuracy with which the pathologist can interpret such smears depends on the extent of his experience. Included in this series are all the early errors that were the result of lack of experience. As more slides were examined the number of errors was gradually diminished. A second factor that must be considered is that in several instances in which clinically there was undoubted gastric neoplasm, it was impossible to obtain good smears because of the retention of food and undigested materials. This was particularly true in those instances in which the neoplasm was so located as to produce obstruction either at the pyloric or at the cardiac end of the stomach. A third point to be mentioned is that in the vast majority of cases only a single aspiration was carried out. This point may not be too significant, in view of the fact that the error both positive and negative was just as great in those instances in which repeated aspirations were done as in the group as a whole when there was only a single aspiration.

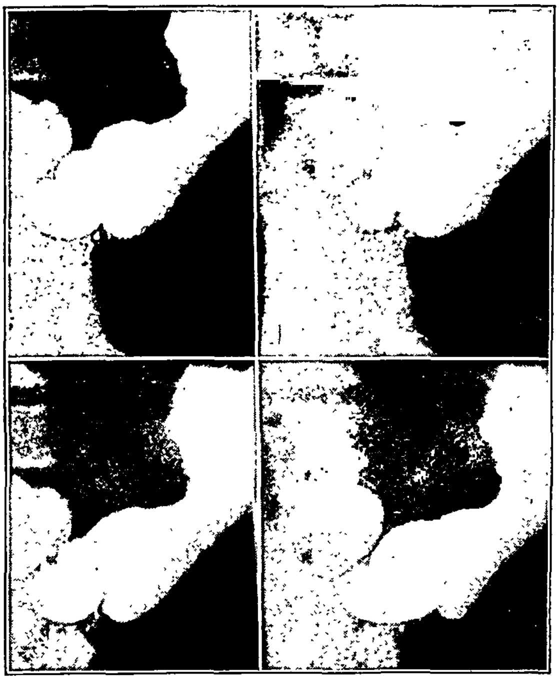

Fig. 7.—Roentgenogram of the stomach of a 62 year old man, showing some angulation of the lesser curvature, with retention; the absence of a filling defect precluded the diagnosis of neoplasm.

This is undoubtedly explained by the fact that aspirations were repeated in the questionable or difficult cases, whereas in the apparently clearcut case a single aspiration was considered adequate.

A final point to be considered is that this series was carried out on a group of patients all of whom had gastrointestinal symptoms. This study was not a survey of asymptomatic persons, and our data should not be interpreted as evaluation of this method in detecting early asymptomatic gastric neoplasms.

In general, however, the procedure has sufficient merit to warrant further trial. False positive reports have been sufficiently numerous to make it inadvisable to plan therapy on the basis of the gastric cytologic study alone. Conversely, a report that malignant cells are present in the fasting gastric contents is an indication that exhaustive studies should be done to rule out the presence of gastric carcinoma. Lastly, the procedure would be valueless and even dangerous except in the hands of a well trained pathologist. Even in such circumstances, difficulties inherent in the procedure will always prevent it from being more than an adjunct to the present accepted methods of examination.

### SUMMARY AND CONCLUSIONS

The cell structure of the gastric juice of 278 patients was examined in three hundred and twenty-six instances for presence of neoplastic cells. Of one hundred and ninety-two aspirations in patients with no clinical evidence of neoplasm the smears were negative in 86 per cent and indefinite or falsely positive in 14 per cent. In forty-three instances in which there was histologic evidence of the absence of gastric neoplasms, the smears were negative in 72 per cent and indefinite or falsely positive in 28 per cent. In 20 cases in which there was clinical evidence of gastric neoplasm, the smears were positive in 40 per cent and negative in 60 per cent. In an additional 41 cases with histologic, as well as clinical, evidence of gastric neoplasm, 35 per cent of the smears were positive and 65 per cent indefinite or negative.

In the present state of development this diagnostic method should not provide the exclusive basis for either the positive diagnosis or the positive exclusion of gastric neoplasm. The method is valueless except in the hands of an experienced and specially trained pathologist.

## ABSTRACT OF DISCUSSION

Dr. Warren C. Hunter, Portland, Ore.: As the diagnosis of gastric carcinoma is fraught with difficulty and uncertainty, every reasonable, safe and prompt diagnostic procedure is worthy of consideration, provided that it is soundly based. Such a procedure is the study of the exfoliating gastric fluid obtained by aspirating the empty stomach. For more than a year, at the University of Oregon Medical School, Dr. Howard L. Richardson and I have been studying such material in a group of unselected patients, most of whom have been furnished us as "unknown." Dr. M. E. Steinberg, of Portland, has carefully studied these cases, but the material came to us as unknown. We are in general agreement with the conclusions of the authors, although, by means of a simple modification which Dr. Block mentioned, the modification of the Papanicolaou smear technic, whereby we embed and section mucus rather than rely on a certainly less reliable smear, our percentage of proved positive results is now about 80. In our experience there is one type of carcinoma that will nearly always be missed by the method, namely, the large obstructive necrotic surface cancers, such as the type Dr. Block mentioned, the exfoliative cells of which are likely to be already in process of breaking down and thus likely to be unrecognizable. I am convinced from experience with a number of such cases that that is the reason why some very obvious carcinomas are missed. The cells are necrotic and cannot be recognized. The microscopic study of gastric mucus is of value as a means of recognizing not only cancer of the stomach but also cancer in the presence of gastritis and gastric ulcer, but, obviously, this is neither the time nor the place to enter into discussion of this phase of the matter. It is my opinion that not until something better than the smear, namely, treating material as tissue, is adopted, will pathologists give any serious consideration to this method for the diagnosis of cancer. They will not because of the fact that Dr. Block mentioned, chiefly the time factor, and what to pathologists is even more unpleasant, and that is the uncertainty of smears because of their varying thickness. Pathologists on the whole will not use smears; therefore, I believe that until we change this method somewhat, even though the principle is good, and until additional personnel is trained, neither this audience nor any other can hope to use such a method generally.

Dr. Maurice Fremont-Smith, Boston: At the Vincent Memorial Hospital in Boston we have been working on the diagnosis of carcinoma of the uterus by vaginal smear for the last five years, and Mrs. Ruth Graham has achieved a great deal of experience in the method and has been able to diagnose carcinoma of the cervix with 90 per cent accuracy. Since we started, about a year and a half ago, to examine gastric secretion, our results have been less satisfactory than Dr. Block's. In a series of about 75 cases, we have achieved only 50 per cent accuracy in a routine series. There is another small series of study cases not yet reported, in which our accuracy has been much more satisfactory than that, but manifestly statistically this method is not yet satisfactory. Our general diagnostic methods for detection of carcinoma of the stomach are puerile. At the Massachusetts General Hospital, in a series of patients operated on ten years ago, only 7 out of every hundred who came to the hospital with gastric carcinoma obtained a five year cure. Something better must be done in early diagnosis of gastric cancer. Continuous exfoliation of cells is taking place in the stomach, both from the normal mucosa and from the majority of malignant lesions, if present. Thus material for a continuous biopsy is present in the gastric secretion. I am not sure that the smear method, as first proposed by Papanicolaou, is the best method. Possibly Dr. Hunter is right in stating that the way to make this diagnosis is not by smear but by the collection of the gastric secretion, precipitating, fixing and sectioning it. The point I want to bring out is that there is material for continuous biopsy obtainable in a large proportion of cases of cancer of the stomach, even in early cases, and it is up to us to find some way of making practical use of this material in the early diagnosis of gastric carcinoma.

Dr. Malcolm Block, Ann Arbor, Mich.: In attempting to evaluate this method, we did fixation along with the smear technic, but after a short period of this, we decided that we should follow Papanicolaou's technic until we could decide whether in our hands the principle could be satisfactory. I briefly went over the fact that we evaluated gastric juice and fixed it in alcohol and followed the usual Papanicolaou procedure. There was a series of experiments in which juice could be obtained by stimulating gastric mucus with alcohol or histamine or by washing out with an irritant or some other material, such as sodium bicarbonate. We carried out a few experiments in the hope of obtaining exfoliative cells in a higher incidence of cases within the usual bounds of technic. We did not obtain exfoliated cells in more instances with whatever technic we used, provided that observations were carried out immediately. Likewise we found that there was no difference in the state of preservation of the cells. This problem is certainly still present, and there are many possibilities for further study of this method.

# ALLERGIC FACTORS IN GOUT

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A number of recent papers on gout refer to it as a forgotten disease, implying thereby that it is frequently overlooked. In a series of 100 patients reported by Hench[1] approximately fifteen years had elapsed from the first attack before a correct diagnosis was made. The average age of onset of gout is usually about 40. Although the majority of patients are men, women are not infrequently affected, and the disease has also been described in children.[2] It is generally recognized that the essential features of this condition consist of arthritis with or without podagra, hyperuricemia; deposits of sodium urate crystals in the articular, periarticular and subcutaneous tissues and, in a certain number of cases, of manifestations of cardiovascular or renal involvement. The complete reversibility of the arthritic attacks in the early stages and their irreversibility in the later phases, terminating in crippling chronic gouty arthritis with tophaceous deposits, are features which have been familiar to the physician and the laity for many generations.

Heredity plays an important role in this condition, and one of the most striking phenomena is the transmission in gouty families of hyperuricemia without the disabling symptoms of the disease. Talbott,[3] for example, reported high amounts of uric acid in the blood in 25 per cent of the relatives of gouty persons. Hyperuricemia is likewise frequently observed in a number of clinical conditions in the absence of gout or a family history. Thus patients with glomerulonephritis may have elevated blood uric acid without any gouty arthritis. Persons having leukemia and polycythemia as well as pernicious anemia may also present similar findings.

Nevertheless, the frequency of the association of hyperuricemia with gout serves to differentiate it from other forms of arthritis, although its exact role is not clear. There often is no relationship between the amount of uric acid in the blood and urine and the degree of arthritic involvement. Paroxysms of gout may occur on one occasion with normal and on another with elevated blood uric acid. The latter may be present between attacks when the patient is completely free of symptoms. Acutely affected joints have been found to be apparently free of urates, whereas certain symptomless joints have revealed extensive deposits of urates. Furthermore, there is no constant relationship between the formation or resorption of tophi and acute attacks.

Nor does the increase in bound uric acid reported by Adlersberg, Grishman and Sobotka[4] in 10 cases of gout in conjunction with hyperuricemia help to explain the causation of the gouty paroxysms. This is especially so since they also found abnormal uric acid partitions in about half of their patients with hepatitis, cirrhosis of the liver, prolonged obstructive jaundice and in 1 patient with suppurative cholangitis as well as in a case of leukemia with icterus. While a high titer of bound uric acid was admittedly not a constant finding in the patients with hepatic disease studied and clinical improvement did not necessarily follow a decrease in bound uric acid or vice versa, neither was this the case in all of the gouty patients under investigation. It is generally felt, therefore, that neither hyperuricemia nor abnormalities in the uric acid partition per se can be looked on as the provocative factors in the gouty attacks.

It is therefore necessary to look for some other contributory factors which may be responsible. The sudden explosive nature of the acute gouty seizure, its regression, especially in the early stages, without any residual involvement of the acutely affected joint, and the elicitation of symptoms by certain foods or alcoholic beverages have led certain European students of this problem[5] to suggest that allergy to these substances may play an important role in the pathogenesis of the disease. None of these investigators, however, has reported any cases in which pollen or the synergistic effect of pollen and foods played a role in the initiation of the gouty paroxysms.

The concept that allergy may at times be a factor in the development of gouty attacks carries with it both theoretic and practical significance, particularly when prophylaxis and treatment are considered. It is therefore of great importance to determine whether the various symptoms of gout are due essentially to a disturbance of purine metabolism as such, leading to retention of uric acid in the tissues, or whether the various arthritic, cardiovascular and renal manifestations may be precipitated by allergic reactions in a person handicapped by a hereditary defect in his purine metabolism. The following 3 cases reported in detail may serve to elucidate some of the points in question.

## REPORT OF CASES

CASE 1.—Patient J. S., aged 25, was first admitted to Mount Sinai Hospital in January 1947. As a boy of 12 he suffered with periodic swelling of the knees, ankles, wrists and elbows, designated at the time as growing pains. These recurred three or four times a year and lasted a day or two. In September 1941, at the age of 20, while in the army he experienced an attack of arthritis involving both ankles and knees. This recurred in March 1942 and again in May and December of that year, when both elbows and wrists also became affected. He was discharged from the army in November 1943 with the diagnosis of arthritis. In February 1944 his right knee became swollen and in August of that year migratory joint pains developed which affected both ankles, knees, left foot and left big toe. In October 1945 while riding horseback he experienced sudden severe pain in the chest associated with difficulty in breathing. He was brought to the Northern Duchess County Hospital, New York, where a diagnosis of acute coronary disease was made. The electrocardiogram showed

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From the Medical Services of the Mount Sinai Hospital, New York. Read before the American Academy of Allergy, St. Louis, Dec. 16, 1947.

[1] Hench, P. S.: The Diagnosis of Gout and Gouty Arthritis, Proc. Staff Meet., Mayo Clin. **11:** 476, 1936.

[2] Scudamore, C.: A Treatise on the Nature and Cure of Gout and Gravel, with General Observatons on Morbid States of the Digestive Organs and on Regimen, London, Longmans and others, *1823*, ed. 4. Still, G. F.: Common Disorders and Diseases of Childhood, ed. 5, London, Oxford University Press, 1927, p. 570. Garrod, A. B.: A Treatise on Gout and Rheumatic Gout, ed. 3, London, Longmans, Green & Co., 1876. Claiborn, T. S.: Gout in a Seventeen Year Old Girl, J. A. M. A. **115:** 38 (July 6) 1940. Bernstein, S. S.: Gout in Early Life, J. M. Sinai Hosp. **14:** 3, 1947.

[3] Talbott, J. H.: Serum Urate in the Relatives of Gouty Patients, J. Clin. Investigation **19:** 645, 1940.

[4] Adlersberg, D.; Grishman, E., and Sobotka, H.: Uric Acid Partition in Gout and in Hepatic Disease, Arch. Int. Med. **70:** 101 (July) 1942.

[5] Llewellyn, L. J.: The Etiology of Gout, Lancet **2:** 475, 1922. Gudzent, F.: Spezifische Eiweissallergie als Ursache von Gicht und Rheumatismus, Acta rheumatol. **8:** 12, 1936. Widal, F.; Abrami, P., and Joltrain, E.: Les cuti-reactions aux vins chez les goutteux, *Presse méd.* **86:** 1425, 1925. Lichtwitz, L.: Gout, Bull. New York Acad. Med. **10:** 306, 1934. Coste, F., and Grigaut, A.: Goutte-allergie-uricémie, Presse méd. **43:** 1724, 1935. Chini, V.: Goutte et allergie, Acta rheumatol. **8:** 17, 1936. Loeffler, W.: Der Gichtanfall als allergischen Erscheinung, Schweiz. med. Wchnschr. **73:** 1179, 1943.

$T_2$ to be diphasic and $T_3$ inverted. This was interpreted as due to some localized damage in the left ventricle. He was transferred to the Veterans' Hospital in Saratoga, N. Y., from which he was discharged in January 1946 with a rating of 100 per cent disability. Throughout that year he suffered with periodic bouts of arthritis. Just before his admission to Mount Sinai Hospital in January 1947, he experienced pains and swelling of the great toe suggestive of gout. He was confined to bed for twelve days and was discharged improved on February 12, only to be readmitted on Feb. 24, 1947 because acute pains and swelling had developed in the right knee. At this time it was found that he also had involvement of the right great toe and medial aspect of the right ankle. The rest of the physical examination was negative. Laboratory studies showed 13,550 white blood cells, 37 per cent segmented polymorphonuclear cells, 50 per cent lymphocytes, 5 per cent mononuclear cells, 1 per cent basophil cells and 7 per cent eosinophils. The blood uric acid on Feb. 25, 1947 was 10.0 mg. per hundred cubic centimeters, on February 27, 7.2 mg., and on February 28, 6.8 mg. per hundred cubic centimeters. The blood cholesterol was 239 mg. per hundred cubic centimeters. Blood urea nitrogen was 8 mg. and creatinin was 1.3 mg. per hundred cubic centimeters. The electrocardiogram was normal.

The patient was given $\frac{1}{50}$ grain (1.2 mg.) of colchicine every two hours for three doses, and on the following morning the joint pains subsided to a considerable extent. After a few days of hospitalization there was gradual improvement, and he was discharged with the diagnosis of gout.

In view of the fact that the most severe attacks occurred characteristically during the spring and fall, it was thought that perhaps the pollen prevalent during that period might be responsible for his symptoms rather than excess of food and drink traditionally considered as responsible factors. Despite a negative personal and family history for allergic diseases the patient was studied for the presence of hypersensitiveness. Tests disclosed positive reactions to a number of foods and inhalants, among which were wheat, timothy and ragweed pollen. It was felt that if sensitivity to pollen or wheat played a role in the arthritic attacks, then direct exposure to these substances should evoke an attack of arthritis in a patient whose shock organ was confined to the joints, just as similar contact would elicit hay fever or asthma in a person whose shock tissue was the respiratory tract. With the consent of the patient, it was decided to give him injections of the pollens in question before putting him on any diet excluding the reacting foods.

On March 21, 1947, while he was free of symptoms, his blood was examined for uric acid and found to contain 4.2 mg. per hundred cubic centimeters. On March 24, 1,000 units (protein nitrogen units, i. e., 1 unit is 0.01 mg. of phosphotungstic acid precipitable nitrogen) of timothy were introduced parenterally. At about 2 a. m. in the morning of March 25 he was aroused with severe pain in the left ankle which increased progressively in severity, followed by considerable swelling, tenderness and heat. There were also swelling and itching in the arm at the site of the injection of the pollen. The blood uric acid rose to 9.9 mg. per hundred cubic centimeters. He took four $\frac{1}{50}$ grain tablets of colchicine, and the swelling subsided within twenty-four hours, only to flare up again on March 28. He repeated the colchicine, and again the swelling receded. He became completely well on March 30, 1947.

The effect of the injected timothy raised the question whether the ingestion of wheat, which is botanically related to timothy and to which he showed a positive skin reaction, had anything to do with the elicitation of the joint symptoms. He was therefore advised to eliminate wheat products. This he did, and he felt perfectly well until April 9, when he ate some bread and cake. A swelling of the right knee developed. The attack, however, was relatively mild and disappeared in twenty-four hours. At this time the blood uric acid was 9.2 mg. per hundred cubic centimeters.

On April 12 he was given an injection of 0.2 cc. of buffered sodium chloride solution used in extracting the pollen as a control, with no ill effects. This procedure was repeated April 14 with equally negative results.

On April 16 while on a wheatless diet he was given 1,750 units of timothy pollen, subcutaneously. This was followed twenty-four hours later with swelling and itching of the arm at the site of injection but without any arthritic manifestation. The uric acid was 7.7 mg. per hundred cubic centimeters. On April 21 he received 1,500 units of ragweed pollen. The arm at the site of injection became swollen, but again no gouty attack followed.

On April 23 he felt well and was told to resume eating wheat. Twenty-four hours later pains developed in the instep of the left foot. The dorsum was swollen and hot and veins distended. The blood uric acid was 7.8 mg. per hundred cubic centimeters. Application of heat and elevation of the foot relieved him. He took colchicine, and the pain and swelling subsided completely on April 26, 1947. When seen on April 28 he was free of symptoms, although he continued to eat wheat. This could be explained on the basis of temporary desensitization as a result of the recent joint attack. While in this asymptomatic state he received 3,000 units of timothy pollen subcutaneously. Eight hours later, at 2 a. m. on April 29, he was aroused with a severe attack of pain involving the upper and outer area of the right foot. The pain was so excruciating that he was unable to move. He also experienced nausea and diarrhea and could not eat. The inoculated site on the arm was markedly swollen and hot. Because of the diarrhea he was afraid to take colchicine and instead was given camphorated opium tincture with relief. On April 30 the pain and swelling gradually shifted to the right ankle and on May 1 it involved the right great toe, preventing him from walking. The skin over the great toe presented a bluish discoloration. The blood uric acid was 6.4 mg. per hundred cubic centimeters. These symptoms persisted with varying intensity until May 7, when he began to feel better; on May 9 he felt perfectly well again. He automatically had stopped eating wheat at the inception of this attack.

On May 12, after a period of three days of well-being, while still on a wheatless diet he was again given an injection of 2,000 units of ragweed. The following day there was a definite local swelling in the arm but no sign of arthritis. On May 16 he was told to eat wheat again. This time six days elapsed before a moderate swelling of the right knee developed. Such a sequence of events is frequently seen in allergic patients who, after abstaining from an offending food for a period of time, require more prolonged contact with the incriminating allergen before having symptoms again. On May 23, while still eating wheat, he was given 2,000 units of ragweed pollen. Within eight hours the pain and swelling in the right knee markedly increased. He was unable to move it more than 1 inch. After he had taken four doses of colchicine the swelling of the knee subsided, but on May 25 it shifted to the right foot and right elbow. His temperature rose to 102 F. and remained at that level until the next day, when it dropped to 100 F.

The blood sedimentation rate was 42 mm. in one hour (Westergren method). The blood examination showed 11,850 white blood cells, the differential count of which was as follows:

| | Percentage |
|---|---|
| Nonsegmented polymorphonuclear cells | 5 |
| Segmented polymorphonuclear cells | 50 |
| Eosinophilic polymorphonuclear cells | 4 |
| Lymphocytes | 37 |
| Monocytes | 4 |

The temperature fell gradually, and on May 28 the inflammatory signs in the ankle and the knee disappeared, but the right elbow remained swollen, and involvement of the left knee followed. Although colchicine was administered again it was ineffective. He was therefore given a subcutaneous injection of 0.5 cc. of epinephrine in the region of the swollen knee. This immediately relieved the throbbing pain and helped to reduce the swelling. Injections of epinephrine were thereafter repeated until all symptoms finally subsided, on June 6, 1947.

Since he had stopped eating wheat after the onset of this severe arthritic attack and at this point had been on a wheat-free diet for three weeks it was decided, despite the presence of timothy pollen in the air, to attempt to desensitize him to the latter as well as to ragweed pollen, and at the same time to study the effect of the simultaneous injections of these two pollen extracts. On June 13, two days after he had received 100 units of timothy and 100 units of ragweed pollens, severe swelling of the left ankle developed, followed on June 14 by that of the left great toe. The blood uric acid at that time was 5.7 mg. per hundred cubic centimeters. Epinephrine was again used effectively with relief from pain. The involvement in the toe continued for the next two weeks, and on June 27 the right elbow became slightly tender and swollen. Complete remission of this attack took place on June 30.

After a symptomless interval of about a week he was again given 100 units of timothy and 100 units of ragweed (July 7). This was followed the next day by injection of 200 units of ragweed. Two days later severe swelling of the right knee developed, followed by marked suppression of urine. A specimen of the latter showed albumin (3 plus). The oliguria continued for three days and gradually cleared, whereas the involvement of the knee persisted till July 25. Throughout this period the joint pains were controlled with epinephrine in oil. Examination of the blood uric acid on August 11, when he was perfectly well, showed 8.1 mg. per hundred cubic centimeters. The urine was normal.

He felt well till September 2, when he experienced slight pain in the right ankle, which disappeared spontaneously after several days, although he had stopped eating wheat. This attack was regarded as due to heavy ragweed pollination. The examination for uric acid on September 3 showed 13 mg. per hundred cubic centimeters. Since this episode he has been perfectly well on a wheatless diet to the present writing (January 1948). Examination of his blood on December 5, 1947 showed 5.9 mg. of uric acid per hundred cubic centimeters.

*Summary.*—A man aged 25 was admitted to the hospital because of an attack of arthritis involving the great toe. He gave a history of periodic bouts of similar joint involvement in the past and an attack of angina pectoris in October 1945. Examination suggested the diagnosis of gout. This was supported by the presence of hyperuricemia. The blood count revealed eosinophilia (7 per cent). Because of the latter and the fact that the most severe attacks occurred during the early summer and fall the possibility of hypersensitiveness to the prevailing pollens was suspected, despite absence of a personal and family history of allergy. Investigation disclosed positive reactions to foods and inhalants, of which wheat, coffee, timothy and ragweed pollen were found to be most significant. Ingestion of wheat induced a moderate attack of monoarticular gout with rise in uric acid. Ingestion of wheat plus the subcutaneous injection of timothy or ragweed pollen extract up to 2,000 or more units resulted in severe polyarticular gout involving the great toe and accompanied by elevation of uric acid. Combined injection of 100 units of ragweed and 100 units of timothy pollen during the grass pollinating season induced similar arthritis seizures and on one occasion was followed by marked suppression of renal function and albuminuria lasting three days. Separate inoculation of either ragweed pollen or timothy pollen, when the patient was on a wheat-free diet, resulted merely in swelling at the site of injection and no other manifestations. With the termination of the pollen season and avoidance of wheat the patient became free of symptoms.

CASE 2.—J. R., aged 45, was first seen in May 1944. He had influenza in 1918 which was followed by otitis media and impairment of hearing. The latter became worse in 1928 as a result of an infection of the upper respiratory tract which also left him with an involvement of the left antrum. As a sequence to the antral infection pain developed in the great toe which was diagnosed as gout. This attack was succeeded by others which were so severe as to disable him for as long as ten days at a time. The arthritic manifestations were preceded by stuffiness of the nose and a postnasal discharge. In November 1940 he suffered with polyarticular gout involving the big toes of both feet, the wrists and the knees which confined him to bed till February 1941. He was treated with colchicine and neocinchophen with good results. After his acute attacks subsided he went to the New York Hospital for observation. Here it was discovered that he had chronic hypertrophic rhinitis, chronic nasopharyngitis, pansinusitis and pronounced mixed deafness. The heart, lungs and abdomen were normal, and roentgen visualization of the gallbladder proved negative. The antrums were washed and the left one was found to contain purulent secretion. Inasmuch as the involvement of this maxillary sinus was found to be associated with a diseased left upper molar, the latter was extracted. An antrotomy was also performed (June 2, 1941) and several large polyps were removed from the interior of the antrum.

Roentgen examination of the left foot at this time disclosed several small areas of decreased density at the proximal end of the first phalanx along the mesial border of the left foot. This was diagnosed as gout. Laboratory studies showed blood uric acid levels of 6.8 mg. and 5.4 mg. per hundred cubic centimeters respectively. The sedimentation rate was 61 mm. On discharge from the New York Hospital he was advised to have the sinuses treated and to stay on a low fat and low purine diet.

From 1942 to 1944 the infected antrum was washed from time to time by his rhinologist, who found that any exacerbation of the chronic sinusitis was followed by a severe attack of gout.

About the beginning of May 1944, after one of his acute sinus attacks, the patient experienced severe pain in the right wrist. In view of the fact that in that season of the year relatively little infection was present the question arose whether exacerbation of the sinus disease, which was responsible for similar previous gouty attack, was due to endogenous or some exogenous factors such as pollen sensitization. Investigation for the presence of hypersensitiveness was therefore undertaken despite a negative personal and family history of allergy.

Skin tests revealed that the patient reacted to various inhalants such as tree pollens, timothy and ragweed, as well as foods. These findings suggested that the sinusitis as well as the sneezing and wheezing together with the "sour stomach" which frequently preceded and aggravated the arthritis attacks during the summer months might be explained on a basis of sensitization to the substances causing positive reactions.

On June 10, 1944 he was placed on a diet which excluded the suspected allergenic foods and immunization was instituted against ragweed pollen. He was also given injections of a vaccine of Staphylococcus aureus organisms cultured from his sinuses.

He felt perfectly comfortable until September 28, when mild asthmatic seizures developed, which disappeared on Nov. 11, 1944. Thereafter he was well until Jan. 8, 1945, when after an infection of the upper respiratory tract he had a moderate attack of arthritis involving the right knee, which cleared up on Jan. 12, 1945.

Immunization against timothy and plantain was begun in February 1945. This was continued uneventfully until March 12, when after an injection of 1,200 units of timothy pollen, he experienced cough and shortness of breath together with pain in the right knee, which improved after two days. The injections of timothy pollen were therefore resumed at a lower level of dosage, and on March 29 immunization against tree pollens was started at the same time. After receiving 200 units of tree pollen extract on April 23, 1945 the patient experienced pain in the right foot, which became so severe and persistent that it was decided to discontinue the injections of tree pollen extract. This was followed by notable improvement, and he remained well till May 7, 1945, when, after an inoculation of

16,000 units of timothy extract, acute bursitis of the right elbow suddenly developed, which lasted for one week. This was interpreted as a local specific reaction to an overdose of timothy pollen. Injections of the latter were therefore discontinued. On June 11 desensitization against ragweed pollen was begun. He was asymptomatic until Aug. 23, 1945, when despite the fact that he had received 4,000 units of ragweed pollen he began to sneeze and experienced stuffiness of the nose, cough and pain in the right great toe. This continued until September 4, when both the nasal and the toe symptoms disappeared.

On October 18 he went to the country for a week end and went off his diet, after which there developed an attack of arthritis affecting the right wrist, lasting for three days. He remained well until Dec. 1, 1945 when after the ingestion of oysters he experienced severe pain in the right foot which confined him to bed for two days. On December 23 he contracted a sore throat. Six days later he experienced swelling of the right hand, affecting the fourth metacarpal joint. This slowly improved.

In view of the fact that during the spring of 1945 injections with combined tree and timothy pollen had to be discontinued because of the appearance of joint symptoms, immunization against tree pollens was begun early in November 1945 and continued through February 1946. On February 12 after a dose of 1,500 units of mixed tree pollens, a moderate attack of asthma developed. This amount was reduced and subsequently increased without any mishap until March 7, when he received 2,500 units of mixed tree pollen extract, consisting of ash, birch, poplar and oak tree pollens together with 100 units of timothy. This was again followed by severe involvement of the right knee. Timothy pollen inoculations were therefore immediately stopped. On March 25 when he reached the dose of 3,000 units of mixed trees the involvement of the right knee, which had been subsiding, flared up again; it persisted till April 30, when it was followed by involvement of the left ankle, which lasted till June 5, 1946.

Because of the experience with the timothy and tree pollen inoculations he decided against further treatment with ragweed extract. As a result symptoms of hay fever developed about Oct. 2, 1946, followed by an attack of podagra affecting the right great toe.

He was not seen again until September 1947 when he gave the following history of the interval. In March 16, 1947 pain in the right elbow associated with bursitis developed. This was followed by swelling of the right hand, which disappeared on April 4. The bursitis persisted until June 4, 1947, when it cleared up completely. During May and June he was unable to walk because of pain in both feet. About July 1, swelling of the left index finger developed and one week later bursitis involving the left elbow. The pain in the left finger subsided on July 8, only to be succeeded by migrating pains affecting the right elbow and both knees; this disappeared about July 25. Throughout this entire period he suffered with asthma, which was relieved by the use of a proprietary preparation containing ephedrine, phenobarbital and aminophylline. He was relatively well till the middle of August, when he experienced symptoms of hay fever, difficulty in breathing, sour stomach and an exacerbation of the bursitis of the left elbow as well as pain in the right great toe. He attributed the sour stomach to coffee and beef, to which he showed positive skin reactions.

*Summary.*—A man aged 45 presented himself because of recurrent attacks of gouty arthritis including podagra following exacerbations of chronic sinus disease which had resulted from previous infections of the respiratory tract. A left-sided antrotomy with improved drainage helped to diminish the frequency of the gouty episodes. Nevertheless he still suffered severely during the spring and fall, when the attacks were preceded by stuffiness of the nose and wheezing respiration. Investigation disclosed sensitivity to tree, timothy and ragweed pollen as well as various foods. Injection of an overdose of tree pollen extract in the process of immunization was followed by acute gouty attacks involving the knee, the ankle or the elbow as well as the great toe. Similar arthritic reactions accompanied by sneezing and/or asthmatic episodes followed the administration of an overdose of timothy extract or combined injections of tree and timothy pollen extracts.

Case 3.—E. W., aged 41, a trained nurse, was admitted to the allergy clinic because of recurrent sneezing which was especially pronounced during July, August and September. The family history revealed that her maternal grandmother had asthma and her paternal grandmother, uncles and father had had arthritis.

As a child she suffered with so-called rheumatic joints and recurrent colds accompanied by sinusitis. When she entered training in 1929 her sinuses were examined and both antrums were found infected. Washings yielded mucopurulent material which on culture showed Staph. aureus, diphtheroids and Staphylococcus albus. In view of the fact that the tonsils were regarded as a source of infection, tonsillectomy was performed in October 1929. On one occasion after receiving a prophylactic injection of typhoid vaccine she experienced stiffness in all her joints. This receded with the exception of the pain in the right wrist, which bothered her throughout her training.

An attack of grip in 1934 was followed by severe coughing spells. Roentgen examination of the lungs disclosed an infiltration in both apices which was diagnosed as tuberculosis. The sputum, however, was never positive for tubercle bacilli. She left training and went to a sanatorium in Saranac, N. Y., where she remained for two years, returning in 1936. Early in 1941 she had a cholecystectomy for lithiasis followed by a pulmonary embolism and pleural effusion. After a stormy convalescence she improved except for the persistence of her sinusitis and pains in the right hand and knee. Because of seasonal recurrences of the sinusitis she suspected that it might be due to allergy and submitted herself for study. On investigation she was found to be sensitive to dust, trees, timothy and ragweed pollen as well as to foods, the most important of which proved to be milk and coffee.

In July 1941 she experienced pain in the great toe of the right foot. This recurred during the hot and humid days of July and August. Inasmuch as the symptoms were suggestive of gout her blood was investigated for hyperuricemia. The specimen examined July 8, 1941 showed a blood uric acid level of 5.8 mg. per hundred cubic centimeters. After another attack of polyarthritis during the ragweed season which implicated right wrist, knee and right great toe, the blood uric acid was 7.2 mg. per hundred cubic centimeters (Aug. 13, 1944).

Immunization was undertaken against dust, timothy and ragweed pollen. She was also given an injection of an autogenous vaccine made from the organisms recovered from the sinus washings. While under treatment she manifested extreme sensitiveness to dust and ragweed pollen. On several occasions, severe constitutional reactions developed after injections of 0.1 cc. of 1:1,000 solution of dust extract. The ragweed pollen extract could not be increased beyond 20 units. Despite the small immunizing pollen doses she became relatively free of the nasal symptoms as well as the joint pains. On April 17, 1947 she was revaccinated with smallpox vaccine. This was followed by an attack of muscle and joint pains, which greatly debilitated her. To regain her vigor she decided to take a glass of milk every afternoon, although she knew that she was sensitive to it and had refrained from drinking it for fifteen years. After partaking of one glass of milk every afternoon for four days she experienced severe pains in the right wrist and right knee as well as in all her neck muscles, which confined her to bed for a week. After recovery she decided to discontinue all immunization to pollen and dust because she was never certain when she would get a constitutional reaction. She has, however, continued to exclude the allergenic foods and has been free of arthritic attacks.

*Summary.*—A nurse, aged 41, with a family history of arthritis and asthma, presented symptoms of hay fever, vasomotor rhinitis and chronic sinusitis associated with bouts of gouty arthritis with hyperuricemia. These appeared (1) during the timothy and ragweed season, (2) after smallpox vaccination and (3) after drinking milk. Improvement followed the elimination of foods to which she was sensitive and immunization to specific pollens and dust.

### COMMENT

In the foregoing cases it was possible to precipitate acute attacks of gouty arthritis and hyperuricemia by specific allergenic excitation. Ingestion of various amounts of purine-and-fat-containing foods proved to be harmless as long as the sensitizing substances were avoided. This suggested that the persons under investigation were allergic and that their shock tissues were located in the articular structures. Evidence to this effect was obtained in the personal and family history of allergy in cases 2 and 3. In case 1, despite the absence of such a history the possibility that allergy might be a factor was considered because the most severe attacks occurred during the spring and late summer coincidental with the pollen season, and on one occasion were accompanied by eosinophilia. Support for this hypothesis was found not only in the demonstration of positive skin reactions to pollens and foods, such as wheat, but also in the precipitation of acute gouty paroxysms by specific contact with these exciting agents. Thus within twenty-four to thirty-six hours after eating wheat this patient invariably experienced a mild monoarticular involvement. In such circumstances it was always possible to induce severe polyarticular gout, including podagra and hyperuricemia, by the injection of either timothy or ragweed pollen solutions in two or three thousand unit doses, whereas when he was on a wheatless diet injections of timothy or ragweed pollen extract were without any effect. However, the combined administration of ragweed and timothy pollen extracts, in doses as little as 100 units each, during the timothy pollen season resulted in polyarticular manifestations of gout on one occasion, and on another besides the arthritis a suppression of urine and albuminuria which lasted three days. The latter may have been due to some vascular reaction in the kidneys in response to pollen sensitization analogous to the periarticular edema and venous dilatation in the acutely gouty joint. It is possible also that the anginal seizure which this patient experienced in October 1945 associated with inversion of $T_2$ and $T_3$ in the electrocardiogram likewise represented a vascular response to some allergenic stimulation. In other words, it is not improbable that in these patients the articular, renal and cardiac manifestations, just as the gouty arthritis, could be looked on as the effects of vascular reactions in different shock tissues induced by sensitization by a variety of exciting agents. It follows, therefore, that no involvement of these extra-articular tissues need be expected unless they happen to be shock organs.

That the gouty attacks may be induced not only by pollen and foods but also by bacterial sensitization is illustrated in cases 2 and 3 of this series. In both of these patients arthritic manifestations followed exacerbations of chronic sinusitis as a sequence to either acute infection of the respiratory tract or tree and grass pollen sensitization during the spring and summer. In case 2 the gouty attacks were frequently preceded by nasal stuffiness or wheezing respiration. Injections of an overdose of tree or grass pollen extracts evoked joint symptoms as well as sneezing and asthmatic breathing. The precipitation of reactions in the respiratory tract concurrently with those in the joints by the same allergenic excitants is strongly suggestive that the responses in these various shock organs were influenced by a similar mechanism. The lack of any evidence of respiratory allergy in case 1 may simply be due to the fact that this patient's respiratory tract was not a shock tissue. Nevertheless, in this as in the other cases, the arthritis seemed to be due to sensitization to pollens and foods and was controlled by local subcutaneous injection of epinephrine,almost as well as with colchicine.

One of the most significant facts made apparent by this study is the severity of reactions and number of shock organs which participated after the simultaneous exposure to several allergens. This synergism was illustrated in case 1, when both polyarthritis and renal symptoms accompanied by hyperuricemia developed, after injection of combined timothy and ragweed pollen, and cases 2 and 3 when nasal and respiratory symptoms such as wheezing appeared together with joint symptoms after the ingestion of specific foods or injections of tree and timothy pollen. This is comparable to the synergistic effects noted as a result of multiple sensitization in uncomplicated allergic states such as asthma or vasomotor rhinitis. Other similarities between the latter and gout are to be found (1) in the presence of uric acid retention in certain asthmatic persons as reported by K. Hajos and Kurti, Kleyn and Storm van Leeuwen, which, however, needs further verification and elucidation; (2) in the influence which nonspecific endogenous as well as exogenous exciting factors such as psychic stress, surgical operations and temperature changes may play in precipitating these different clinical syndromes. Any one of these nonspecific excitants may either accentuate the asthmatic or gouty attacks originally induced by allergy to certain food or inhalants or condition the respective shock tissues to subsequent specific sensitization.

If it may be assumed that the fundamental reaction in the joints of the patients under investigation was due to hypersensitiveness, it may be inferred that any subsequent deposition of urates in the affected articular and other structures such as the kidney would be probably secondary. This concept finds support in the observations of Weil[6] and his collaborators, who observed fibrinoid degeneration of the collagen, surrounded by fibroblasts, histiocytes, plasma cells and granulocytes in the histologic sections of a gouty joint, regarded by them as due to allergy. The classical picture of chronic tophaceous gout in patients like those described can therefore be looked on as the result of irreversible inflammatory changes in the joints, originally of allergic origin, which favor the precipitation and deposition of urates. This sequence of events may be compared to bronchial asthma, in which recurrent attacks may lead to irreversible changes characterized by pulmonary fibrosis and emphysema.

Uric acid itself is considered by some investigators of this disease as a dead product in the attack. Others, such as Chini, look on uric acid as an activating agent concerned with fixing of the allergens in certain pre-

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6. Lettule, M., and Weil, M. P.: La goutte articulaire, les lesions primordiales du cartilage, Presse méd. 32: 577, 1924.

disposed areas because of its capacity to produce increased tissue permeability. According to this investigator uric acid and the allergic factors compliment each other and must be considered equally responsible in the gouty attacks. Such an interpretation, however, seems to be contradicted by the fact that despite the presence of a high level of uric acid in the blood, the gouty person, on the one hand, may be free of any symptoms, and, on the other, may have attacks when on a so-called normal or low purine diet with normal blood uric acid. This would suggest, in the absence of any evidence that uric acid has any allergenic properties, that the role of uric acid is passive rather than active. Emphasis should therefore be directed to the specific and nonspecific excitants of either exogenous or endogenous origin, which may play the active role in the development of the gouty symptoms.

Inasmuch as a disturbed purine metabolism, whether on a constitutional or other as yet unexplained basis, usually accompanies this disease, the gouty person of the type referred to may be regarded as a potentially allergic person whose joints constitute the major shock tissue with a coincidental uric acid diathesis. The crippling arthritis of the tophaceous stage in such a patient may represent the sequela of undetected repeated allergenic insults. The ensuing local complications may in turn be attributed to the mechanical and otherwise irritating effects of the uratic deposits.

## SUMMARY

It is generally recognized that attacks of gout in predisposed persons may be precipitated by a large number of factors. These may be foods, certain alcoholic beverages, excessive ingestion of fats, surgical operations, drugs such as mersalyl, ergotamine tartrate given for migraine, insulin, liver injections, blood transfusions, disturbance in the electrolyte and water balance, trauma and exposure to dampness and cold. The mode of action of each of these exciting agents varies and is not always clear. It is therefore desirable whenever possible to determine the underlying mechanism involved.

In a study of 3 patients, 2 men and 1 woman, it was possible to demonstrate that allergy to specific foods and pollens as well as to infection played a conspicuous role in the development of the gouty manifestations associated with hyperuricemia. Acute attacks of gout could be induced by the deliberate subcutaneous injection of several pollen extracts at the same time or by the synergistic action of allergenic foods and pollens. In addition to the joint symptoms reactions in the kidneys characterized by temporary urinary suppression with albuminuria were observed in 1 patient as a consequence of pollen inoculation. In another instance the administration of an overdose of pollen was followed by simultaneous response in the nasal and pulmonary as well as in the articular structures. This suggested that the swelling of the gouty arthritis in these patients and the renal and respiratory manifestations were the result of vascular tissue reactions mediated by a similar allergic mechanism. The role of uric acid in the gouty attacks is discussed. The symptomatic treatment consisted of administration of colchicine and local injection of epinephrine. The causal therapy included the elimination of offending foods and pollen immunization.

# TOXIC REACTIONS DURING STREPTOMYCIN-SULFADIAZINE THERAPY OF BRUCELLOSIS

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The toxic effect of streptomycin on the eighth cranial nerve has been well known since early in its clinical use. Published opinions indicate that the toxicity of streptomycin to the central nervous system is confined almost entirely to this nerve, predominately to its vestibular branch.[1] Nevertheless, a few isolated instances of other neurologic involvement have been reported. Hunnicutt and co-workers[2] have published a fatal case of toxic encephalopathy apparently caused by streptomycin. Postmortem examination revealed focal areas of rarefaction and necrosis throughout the brain. Finland and co-workers[3] reported a patient in whom severe vertigo, syncope and right-sided clonic convulsive seizures occurred on two occasions during the intravenous injection of streptomycin. In patients with meningitis receiving streptomycin intrathecally, neurologic disorders arising during the course of treatment ordinarily are attributed to the disease, but in some instances it is not unreasonable to suspect that the symptoms may be a toxic manifestation of the drug. For example, in the report by Weinstein and Perrin[4] of 3 cases of meningitis due to *Pseudomonas pyocyanea* treated with streptomycin and sulfadiazine, circumstances in their second case warrant a strong suspicion that the neurologic complications were due to the drug rather than to the disease. In a relapse of the meningitis occurring thirty-two days after initial treatment, streptomycin and sulfadiazine were again administered.

> Twenty-three days after resumption of intrathecal treatment, a series of generalized convulsions, lasting about an hour occurred, and was followed by stupor. A lumbar puncture revealed 550 red cells and 550 white blood cells per cu. mm. (91 per cent lymphocytes). There were no localizing neurological signs or paralysis. Within 24 hours consciousness returned but the patient was euphoric and had some difficulty in recognizing people. Intrathecal streptomycin was discontinued immediately after the convulsive episode.[4]

The relatively low spinal fluid leukocyte count is in contrast to counts of 6,000 to 14,000 during the early days of the relapse. This, together with the absence of a rise in fever, further leads one to suspect that this complication may have been due to the streptomycin. It may be significant that this patient was receiving sulfadiazine simultaneously.

Paresthesias of the face, particularly of the circumoral region, the tongue and even of the extremities are not infrequent.[5] Although this is well known, its possible significance as evidence of widespread

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[1] Farrington, R. F.; [illegible] A., and McDermott, W.: Streptomycin Toxicity, J [illegible] 38 (June 21) 1947.

[2] Hunnicutt, T.; Gr [illegible] M.; Ferris, E. B., and Scheinker, I. M.: Fat [illegible] Apparently Caused by Streptomycin, J. A. M. [illegible] 12) 1948.

[3] Finland, M.; Murray, R.; Harris, H. W.; Kilham, L., and Meads, M.: Development of Streptomycin Resistance During Treatment, J. A. M. A. 132: 16-21 (Sept. 7) 1946.

[4] Weinstein, L., and Perrin, T. S.: Meningitis Due to Pseudomonas Pyocyanea: A Report of Three Cases Treated Successfully with Streptomycin [illegible] Int. Med. 29: 103-117 (July) 1948.

[5] [illegible] atment of Infections, Report of the Committee [illegible] and Other Agents, National Research Counc.., [illegible] (Sept. 14) 1946.

toxicity to the central nervous system has been largely ignored.

During the course of treatment of brucellosis with the combined use of streptomycin and sulfadiazine, we have encountered toxic reactions of the nervous system which seemed to be out of proportion to the small doses of streptomycin and to involve more widespread areas of the brain than has generally been recognized. In 2 cases severe encephalopathies were encountered within a few hours after the initial dose of streptomycin.

### REPORT OF CASES

Case 1.—Miss I. K., a 24 year old woman, has been observed at the University of Chicago Clinics since Sept. 1, 1947. (This patient was reported by Howe and his co-workers,[6] case 3, and also by Apter, Halstead, Eisele and McCullough.[7]) She acquired brucellosis (Brucella suis septicemia) in March 1945 while in the Navy working in a brucella research laboratory. The initial illness was severe and prolonged and included episodes of intense headache and stupor, suggestive in retrospect of an encephalopathic process. In the succeeding two years there were at least ten febrile recurrences. She has continued to be totally disabled and to complain of persistent fatigue, recurrent headaches, multiple joint pains, insomnia, mental sluggishness and remarkably poor memory. Laboratory and clinical evidence of organic brain damage in this patient has been presented elsewhere.[7]

In November 1947 a course of simultaneously administered streptomycin and sulfadiazine was instituted. Twenty-four hours after sulfadiazine therapy (6 Gm. per day) was begun, streptomycin therapy was started. On the first day, 3 Gm. of streptomycin were given in divided doses, on the second day 4 Gm. and then, because of toxic signs, the dose was reduced, and for the next eight days 2 Gm. were given daily. The sulfadiazine therapy was continued for an additional eleven days, with blood levels approximating 10 mg. per hundred cubic centimeters. One week after streptomycin therapy was stopped, additional 4 Gm. were given during a twenty-four hour period for the purpose of verifying and further evaluating the toxic reaction.

During the second day of streptomycin therapy, the patient presented alarming symptoms of central nervous system disturbance, consisting of severe headache, semistupor, mild disorientation, bilateral ptosis of the eyelids, eye muscle weakness with difficulty in convergence and diplopia on lateral gaze, blurring of vision, paresthesias and pronounced hypalgesia to pinprick on the entire face and forehead, most pronounced in the perioral region, tremulousness of the lips bordering on fibrillatory movements, tinnitus and paresthesias in the extremities. A lumbar puncture was done; the dynamics were normal, the cell count was 4 lymphocytes per cubic millimeter, and the results of chemical, colloidal gold and Kahn tests were normal. We questioned seriously whether this treatment should be abandoned, but in view of the patient's long incapacitating illness and a reasonable doubt that this reaction could be due to the treatment, the dose of streptomycin was reduced to 2 Gm. per day and continued for eight more days. On this reduced dose the symptoms and signs diminished but did not disappear.

One week after streptomycin therapy was stopped, but while sulfadiazine was still being administered, streptomycin was again given for a twenty-four hour period (0.5 Gm. every three hours, total dose 4 Gm.). After the second dose, the former symptoms and signs reappeared, and by the end of the twenty-four hour period the previously described clinical picture was again reproduced in all essential details. The diplopia and the perioral hypalgesia to deep pinprick persisted for two weeks, eventually disappearing.

Case 2.—Mrs. C. B., a 50 year old farmer's wife, has been examined at frequent intervals at the University of Chicago Clinics since November 1944. (This patient was also reported by Apter, Halstead, Eisele, and McCullough.[7]) The present illness began in 1938 and was characterized by an acute onset with temperature ranging as high as 104 F., severe headache, muscular pains and loss of weight. Although bacteriologic proof has not been obtained in this patient since she was first seen by us seven years after the onset, the diagnosis of chronic brucellosis rests soundly on the following data: an adequate exposure history consisting of ingestion of raw milk from a herd subsequently shown to be heavily infected with Bang's disease, a rising agglutinin titer from completely negative at the onset of the illness to a titer of 1:320 several months later (both tests were performed in the Illinois State Laboratory of Public Health) and a chronic febrile incapacitating illness in a previously well patient. Following her acute illness, her complaints have been many, persistent and disabling and included headache, weakness, exhaustion, insomnia and radicular pains. Recurrent episodes of low grade fever occurred. For the past seven years she has recognized increasing difficulties in reading, writing, calculating and remembering. Sample tests for immediate recall, memory and calculation yielded retarded and impaired responses. The significant neurologic observations consisted of decided concentric constriction of the visual fields; unequal pupils; minimal and sluggish reaction of the right pupil to light; tremulousness of the lips during mimetic expressions; bone conduction greater than air conduction on the left; generalized muscular weakness and hypotonia; bilateral symmetric atrophy of distal portions of all extremities most pronounced in the intrinsic musculature of the hands and feet; hyperactive knee jerks; the right ankle jerk absent and the left barely elicited; absence of vibratory sensation over terminal phalanges, ulnas, radiuses, tibias and fibulas; impairment of position sense in all extremities; pain, thermal and light touch sensations diminished on the face, thorax and abdomen and greatly impaired distal to the elbows and knees; awkwardness in the performance of coordinative functions, and hesitant and mildly ataxic gait. Spinal fluid studies on four occasions revealed no biologic alterations. Electroencephalographic tracings taken a year apart were consistent with a diagnosis of generalized encephalopathy. The Halstead Impairment Index[8] of biologic intelligence was 0.8.

In February 1948 she was given the combined streptomycin and sulfadiazine treatment. Sulfadiazine was started with a daily dose of 6 Gm. The next day, streptomycin therapy was started with a dosage of 2 Gm. per day and continued for fourteen days (total dose, 28 Gm.). Sulfadiazine therapy was continued for an additional four weeks, and blood levels were maintained at approximately 10 mg. per hundred cubic centimeters.

On the second day of streptomycin treatment, the patient experienced a severe generalized headache, dizziness, blurring of vision, diplopia on lateral gaze, ptosis of the eyelids and complete inability to roll the eyes upward. She complained of stiffness and soreness of the neck, and a moderate degree of nuchal rigidity was present. A sharp but brief rise in temperature occurred during an otherwise afebrile period. These signs and symptoms appeared after 2 Gm. of streptomycin were administered and became maximal after 4 Gm. They persisted but did not progress during the remainder of the course of streptomycin and thereafter gradually disappeared. Spinal fluid examination on the second day showed normal dynamics, an absence of cells and normal serologic and chemical reactions.

Toward the end of the course of streptomycin tinnitus and vertigo developed. Repeated tests of labyrinthine function showed no abnormalities until the course was completed. Symptoms then became so severe that she was unable to walk without aid, and tests showed nonresponding labyrinths. This disability has persisted to the present time, five months later.

In addition to the foregoing 2 cases, an odd neurologic complication has been observed in another patient.

Case 3.—Mrs. C. M., a 49 year old farmer's wife, has been followed intermittently at the University of Chicago Clinics since August 1946. Her complaints were many and varied. A prior diagnosis of brucellosis could not be confirmed, in part because of previous vaccine therapy. The patient requested the combined streptomycin and sulfadiazine treatment. In keeping with our policy of reserving this treatment for the seriously ill patient, and also because of the dubious diagnosis, her request was refused. She then went elsewhere and obtained the treatment. In January 1948 a five day course of treatment consisting of a total dose of 7 Gm. of streptomycin (1.5 Gm. per day) and 20 Gm. of sulfadiazine was given in another hospital. (This information was furnished by the patient's physician.) On the fourth day of treatment persistent retention of urine developed, and the patient required daily catheterizations. This dysfunction has persisted to the present time, seven months later. Repeated urologic examination here, including cystoscopy, cystometric studies and bladder sensory examinations, have led to the diagnosis of a neurogenic bladder dysfunction. Neurologic examinations, spinal fluid studies, electroencephalograms, tests of visual fields and roentgenograms of the skull and spine yielded no other evidence of disease.

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[6] Howe, C.; Miller, E. S.; Kelley, E. H.; Bookwalter, H. L., and Ellingson, H. V.: Acute Brucellosis Among Laboratory Workers, New England J. Med. **236**: 741-747 (May 15) 1947.

[7] Apter, N. S.; Halstead, W. C.; Eisele, C. W., and McCullough, N. B.: Impaired Cerebral Functions in Chronic Brucellosis, Am. J. Psychiat. **105**: 361-366 (Nov.) 1948.

[8] Halstead, W. C.: Brain and Intelligence, Chicago, University of Chicago Press, 1947.

This unusual complication arising shortly after the start of combined streptomycin and sulfonamide therapy and unexplained after intensive investigation of other possible causes, although not necessarily due to the treatment, at least warrants speculation.

Circumoral paresthesia accompanied with objectively demonstrable hypalgesia has been a common occurrence in our patients receiving the combined streptomycin and sulfadiazine treatment. The symptoms and signs usually developed within a few days after treatment was started, even with the relatively small dose of 2 Gm. per day.

### COMMENT

The fatal case of toxic encephalitis reported by Hunnicut and co-workers[2] demonstrates that widespread damage to the central nervous system may be produced by streptomycin. The cases cited here support this thesis. They serve to raise seriously the question of the significance of minor neurologic signs, the paresthesias, which commonly accompany streptomycin therapy. These minor clinical signs of toxicity have previously been largely disregarded. It should be remembered that the lack of definite neurologic signs does not exclude the possibility of insidious or latent damage to many areas of the brain. It is well known that serious neurologic disease may appear many years after the action of an inciting agent. For instance, postencephalitic Parkinsonism may appear long after the acute phase of the disease, and the acute encephalitis may in fact have been so mild as to have been unrecognized at the time. Damage to the so-called silent areas of the brain may escape recognition. These areas, although furnishing a paucity of signs, serve as the highest integrative centers of intelligence.

The usefulness of the combined streptomycin and sulfadiazine treatment in brucellosis was first reported independently by Pulaski and Amspacher[9] and by ourselves.[10] Although we were among the first to use and report this method, we have employed this treatment only in carefully selected cases, in part because of our early recognition of its inherent toxicity. We have recommended[11] that this treatment be reserved for the seriously ill patient.

In our experience with the combined streptomycin and sulfadiazine treatment, the toxic effects on the nervous system have been of such frequency and magnitude that we have seriously considered the likelihood that the combined use of the drugs increases the toxicity as well as the clinical effectiveness of streptomycin, or possibly the nature of the disease may increase the hazards. It should be remarked that our series contained several patients with preexistent central nervous system involvement, a complication which has long been recognized in brucellosis. Both of the severe reactions occurred in patients with long-standing brucellosis with this complication. Milder reactions, however, have occurred in patients without recognizable central nervous system disease.

In patients with a chronic granulomatous disease, the use of a specific treatment may evoke a Herxheimer type of reaction. Granulomatous lesions in brucellosis have been demonstrated to occur throughout the entire brain.[12] In our first 2 cases several factors suggest this as a plausible mechanism for the toxic reaction, namely, the explosive nature of the onset, the short interval between the initiation of treatment and the appearance of the reaction, the peak of the reaction appearing with small total doses of the drug, the prompt production of a clinical picture reminiscent of the symptoms of the initial illness and a sharp but brief rise in temperature during an afebrile period. On the other hand, the frequency of minor neurologic signs, evidencing a widespread toxic action on the central nervous system, makes one question whether these cases are merely exaggerated instances of toxicity in vulnerable subjects.

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# TREATMENT OF GLAUCOMA ASSOCIATED WITH IRIDOCYCLITIS

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The management of ocular hypertension associated with iridocyclitis constitutes one of the most difficult problems in ophthalmology. The accepted dogma is to consider the condition in all such cases as secondary glaucoma and to adopt a more or less standard formula for treatment. Yet, when confronted with a case of iridocyclitis in which ocular hypertension develops, the physician wonders whether to continue with a mydriatic, change to a miotic or resort to surgical treatment. On the other hand, there are instances in which fairly successful miotic treatment was discontinued in favor of treatment with mydriatics, because a few keratic precipitates or cells in the aqueous were discovered.

The vagueness in the approach to this problem is due largely to the manner in which cases of secondary glaucoma have been classified. Of course, the ideal classification would be an etiologic one. There have been occasional reports of cases in which the causative factor has been demonstrated. Weingott[1] reported 3 cases of gonococcic iridocyclitis with glaucoma. However, in the majority of these cases, the cause is unknown. Fralick, Cooper and Armstrong[2] were unable to discover a causative agent in any of their 261 cases of glaucoma associated with iridocyclitis. For the present, a discussion of treatment cannot be based on etiologic considerations. As a matter of fact, it is difficult to find any suitable criteria for a practical classification. Weekers[3] discussed treatment without attempting to classify the cases.

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[9] Pulaski, E. J., and Amspacher, W. H.: [illegible] Therapy in Brucellosis, Bull. Army M. Dept. 7: 221-225 (Fe[illegible] and Amspacher, W. H.: Streptomycin Therapy [illegible] Intestinal Origin, New England J. Med. 237: [illegible]

[10] Eisele, C. W., and McCullough, N. B.: [illegible] and Sulfadiazine Treatment in Brucellosis, J. A. [illegible] (Dec. 20) 1947.

[11] Eisele, C. W., and McCullough, N. B.: The Treatment of Brucellosis, Illinois M. J., to be published.

[12] Meerssmann, Dechaume and Pommé: Un cas de encéphalite aiguê postmélitococcique; [illegible] Revue de microbiologie appliquee à l'agriculture [illegible] cited by Roger, H., and Poursines, Y.: Les [illegible] Paris, Masson & Cie, 1938. Scheidegger, S., an[illegible] bei Bangscher Krankheit, Ztschr. f. d. ges. Neurol. u. Psychiat. **157:** 449-465, 1937. Kessler, M., and Müller, W.: Meningoencephalitis bei Morbus Bang, Arch. f. Psychiat. **109:** 347-362, 1939. Löffler, W.; Moeschlin, S., and Willa, A.: Klinik und Pathologie der Febris undulans Bang unter besanderer Beruecksichtigung der spezifischen Kimplikationen, Ergebn. d. inn. Med. u. Kinderh. **63:** 714, 1943. Hansmann, G. H., and Schenken, J. R.: *Melitensis Meningoencephalitis:* Mycotic Aneurysm Due to Brucella Melitensis Var. Porcine, Am. J. Path. **8:** 435-444 (July) 1932.

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At best, the criteria for distinguishing between primary and secondary glaucoma are rather arbitrary. At one time there was a tendency to classify as secondary glaucoma any disease in which there occurred pigment deposits on the posterior surface of the cornea.[4] Later, it was shown that such deposits occur in many normal eyes. An opposite point of view was taken by Thiel,[5] who stated that keratic precipitates and posterior synechia may occur in acute glaucoma as a result of the venous stasis. We will revert to this phase of the subject later in the paper. These specific examples from the literature will serve to indicate the complexity of the problem.

For the purpose of treatment, it would be advantageous if the conditions in which glaucoma is associated with iridocyclitis could be divided into therapeutic entities. In the state of present knowledge, however, one cannot hope for a definitive classification even from this point of view. Cattaneo[6] suggested such a classification by dividing his cases into the following three groups:

1. Patients in whom ocular hypertension precedes the iridocyclitis should be treated with miotics followed by ethylmorphine hydrochloride ("dionin") and epinephrine.
2. Patients in whom the two conditions occur simultaneously should be treated with mydriatics and paracentesis.
3. Patients in whom the hypertension occurs in the late stages of iridocyclitis should be treated by operation, such as iridectomy, trephine, sclerectomy or sclerotomy.

The present paper will attempt to clarify further the relationship between the clinical pictures and therapeutic criteria. For this purpose, the following classification is suggested:

1. Iridocyclitis occurring in a person with primary glaucoma
2. Relatively mild cyclitis in which ocular hypertension occurs at the onset or early in the course of the disease
    (*a*) Syndrome of recurrent glaucomatocyclitic crises
    (*b*) Iridocyclitis without posterior synechiae (or with old synechiae) associated with the early appearance of ocular hypertension
3. True secondary glaucoma resulting from iridocyclitis
    (*a*) Early: associated with plasmoid aqueous, active iridocyclitis and fresh posterior synechiae
    (*b*) Late: associated with structural changes in the filtration chanels or with long-standing uveitis

### 1. IRIDOCYCLITIS IN PRIMARY GLAUCOMA

Rarely, iridocyclitis may occur in association with primary glaucoma. Out of 12,000 patients, 3.1 per cent suffered from primary glaucoma, while 0.9 per cent had iridocyclitis. The expected frequency of coincidental occurrence of the two diseases in the same patient would thus be 0.028 per cent, or about 3 cases out of 12,000. Actually, 2 such cases were observed in this series. One of these will serve as an example.

A. M., a 67 year old housewife, was first seen in 1933 with acute iridocyclitis of the left eye, which was followed on the next day by a similar inflammation of the right eye. She improved with atropine and scopolamine therapy, but the ocular tension remained elevated. The eyes became white, and the patient did not return to the office until two years later. At this time, she had tension of 65 mm. in both eyes and deep cupping of both disks. The right field was normal, but the left showed pronounced nasal contraction. The picture was that of chronic simple glaucoma without symptoms. Bilateral Elliot trephine operations normalized the tension, and her status had remained relatively unchanged to the time of writing.

The condition in this case was treated at first as secondary glaucoma; only the subsequent course revealed the true nature of the disease. Fortunately, the use of atropine and scopolamine in this case did not have any disastrous effects. Conditions of this type, however, should be treated with caution. At first, treatment with the miotic is discontinued. If the anterior chamber has a narrow angle, phenylephrine hydrochloride ("neo-synephrine hydrochloride"), 10 per cent, may be used to break up or prevent synechiae. In the presence of a wide angle, a filtering bleb or an iridectomy coloboma, homatropine may be used cautiously.

While the low incidence of these cases makes them less important clinically, they serve to emphasize the fact that the presence of iridocyclitis does not automatically stamp a case of glaucoma as secondary.

### 2. MILD CYCLITIS WITH GLAUCOMA

One occasionally encounters a condition which, at first, seems to have all the features of primary glaucoma. Within a few days, a few cells are seen in the aqueous or a few keratic precipitates are discovered. According to the accepted teaching, the diagnosis should then be changed to secondary glaucoma. In the mind of the average ophthalmologist, it is almost mandatory to change to treatment with mydriatics. Yet, if the tension has been fairly well controlled or, on the other hand, if it is very high, he hesitates to use atropine or homatropine. It has been our experience that this mental reservation is justified.

From physiologic considerations, it seems plausible that the presence of a large number of cellular elements, fibrin and other plasma proteins may cause a rise in the intraocular pressure, by mechanical blockage of the filtration channels, by increasing the colloid osmotic pressure of the aqueous or by a combination of both factors. However, these mechanisms cannot be invoked to explain a tension of 70 to 90 mm. when only a few keratic precipitates or cells are present, in the absence of an abnormal aqueous ray. The mechanism responsible for the rise in intraocular pressure in these cases is undoubtedly different from that causing glaucoma secondary to active iridocyclitis.

*Syndrome of Recurrent Glaucomatocyclitic Crises*.—This condition was described as a clinical entity in a previous report.[7] It is characterized by recurrent attacks of unilateral glaucoma associated with mild cyclitic signs. The patient complains of vague ocular discomfort, but no real pain. The visual acuity is usually normal, even at the height of the attack. The eye shows little or no evidence of congestion or ciliary injection, but there may be a slight scleral flush if the tension is very high. A few cells and keratic precipitates may be present at the first examination, or they may appear a day or two later. The ophthalmologist is amazed to find an ocular tension of 60 mm. or over, and in some cases as high as 90. There may be a history of one or more previous attacks. We reported 9 cases of this type. The chamber angle was moderately narrow in one half of the patients examined with the gonioscope and wide in the other half. None of the patients showed peripheral anterior synechiae. Without treatment, the tension returns to normal within one to three weeks, although there may be spontaneous fluctuations during this time. The keratic precipitates disappear within a month after subsidence of hypertension. The visual field remains unchanged over several years, despite recurrent attacks. Widened angioscotomas may be noted during the attack. The condition is frequently associated with allergy and essential hypertension. If heterochromia is present, the eye with the lighter-colored iris is affected. The other eye remains normal. The following case history illustrates the essential features of this syndrome.

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[2] Fralick, F. B.; Cooper, J. H., and Armstrong, R. C.: Uveitis with Secondary Glaucoma, Tr. Am. Acad. Ophth. **47:** 92-99, 1942.

[3] Weekers, L.: Treatment of Ocular Hypertension Complicating Iridocyclitis, Arch. d'opht. **53:** 166-176, 1936.

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[5] Thiel, R., in Schieck, F., and Bruckner, A.: Kurzes Handbuch der Ophthalmologie, Berlin, Julius Springer, 1931, vol. 4, p. 707.

[6] Cattaneo, D.: Hypertensive Iridocyclitis: Therapy Based on Etiologic Classification; Cases, Boll. d'ocul. **15:** 1115-1141, 1936.

[7] Posner, A., and Schlossman, A.: Syndrome of Unilateral Recurrent Attacks of Glaucoma with Cyclitic Symptoms, Arch. Ophth. **39:** 517-535 (April) 1948.

In 1927 R. M., a 52 year old housewife, began to have attacks of edematous swellings in different parts of the right side of the face and neck, associated with headache and misty vision of the right eye. An ophthalmologist found the tension of this eye to be 70 mm. Schiotz and prescribed pilocarpine. The following day the tension was normal. She continued to use low concentrations of pilocarpine, even though her tension remained normal. In June 1933, she complained of blurred vision in the right eye of two days' duration. The eye was white. The tension was 45 mm., and a few fresh keratic precipitates were present. She was given homatropine, and the tension subsided within three days. No foci of infection were found. The precipitates disappeared within three weeks. In February 1934, during a similar episode, she was again given homatropine and subsidence of the attack followed within a few days. During the following year, in spite of the prophylactic use of pilocarpine, another attack occurred and subsided with pilocarpine therapy.

She was followed in this office since 1942 at monthly intervals by Dr. Schoenberg and later by us and suffered no recurrences until November 1947, when she experienced some blurring of vision and halos of the right eye. The tension was 66 mm. in the right eye and 23 mm. in the left. The vision of the right eye was 20/25 with correction. Pilocarpine, 1 per cent, increased the blurring of vision and failed to reduce the tension. She used 0.25 per cent pilocarpine twice a day and felt relatively comfortable. It was not until the third day that a few precipitates appeared on the posterior surface of the cornea. The tension fluctuated between 36 and 90 mm., until two weeks after the onset, when it dropped to 15 mm. (7 mm. less than the unaffected eye). As of the time of writing, the tension had remained normal. The keratic precipitates disappeared within a month. The field showed widened angioscotomas at the height of the attack but returned to normal. A pupillogram, made by Dr. Otto Lowenstein in March 1947, showed a bilateral curve similar to that in primary glaucoma. Gonioscopic study showed both chamber angles to be open and wide even during the attack. Patient had mild essential hypertension.

In treating these patients, one should bear in mind that the attack is self limited. If possible, it may be wise to follow at least one attack without treatment or with placebo treatment. Since this syndrome may be regarded, in a sense, as a form of glaucoma intermediate between primary and secondary, it is best to avoid both strong miotics and strong mydriatics, particularly eserine, neostigmine, di-isopropyl fluorophosphite (DFP) and atropine, no matter how high the tension rises. We have found that pilocarpine in concentrations of 0.5 to 2 per cent is usually effective in lowering the tension, at least temporarily. Although it may cause myopia, it does not cause any discomfort. Epinephrine bitartrate, 2 per cent, and "neo-synephrine hydrochloride," 10 per cent, may also reduce the tension, even though the pupil becomes dilated. Eserine and neostigmine may give rise to congestion, pain and even elevation of tension. DFP has not been used in this group, but one would expect similar effects from it. Since the disease is self limited and causes no permanent impairment of the visual functions, surgical treatment is not indicated.

*Iridocyclitis Without Posterior Synechiae Associated with Early Glaucoma.*—Patients with iridocylitis without posterior synechiae associated with early glaucoma show a large number of keratic precipitates and slight ciliary injection, observations which indicate the presence of active cyclitis. In some cases, the precipitates are so numerous that the entire posterior cornea is studded with them. They do not form posterior synechiae during the course of the attack. The ocular hypertension occurs concomitantly with, or early in the course of, the cyclitis. Both the hypertension and the keratic precipitates persist longer than in the syndrome of glaucomatocyclitic crises. Both eyes may be affected.

The patients should be treated with pilocarpine up to 2 per cent alternated with phenylephrine hydrochloride, 2.5 per cent or 10 per cent. The latter drug has a threefold action: it alleviates congestion, dilates the pupil and helps to lower the tension. The most important criterion in the treatment is the presence or absence of posterior synechiae. Pilocarpine may be used safely as long as there is no tendency toward the formation of posterior synechiae. For this reason, it is advisable to study the eye frequently with phenylephrine hydrochloride mydriasis. If an old synechia is noted at the first examination, it need not influence the course of treatment. It is well known that these patients tolerate a moderate elevation of tension, up to 40 or 45 mm., for some time without losing field. Even if such elevation persists for several weeks, the physician need not be alarmed. If the tension is higher and does not respond to medication, sorbitol may be used intravenously or paracentesis performed.

These cases of relatively mild cyclitis with glaucoma, and particularly the syndrome of glaucomatocyclitic crises, give the impression that there is no direct causal relationship between the cyclitic manifestations and the glaucoma. Even if one believes that both the cyclitis and ocular hypertension have the same causative factor, one still does not know what this factor is. In some glaucomatocyclitic crises there are no keratic precipitates or cells for the first few days, and in others visible signs of cyclitis are absent throughout the attack. The thought cannot be dismissed that some cases of so-called primary glaucoma may be related to this group. Evidently, the lack of a sharp line of demarcation has led Thiel to include under primary glaucoma some conditions with a few keratic precipitates. After all, the vascular phase of congestive glaucoma is, in part, an expression of an irritability of the ciliary body, as demonstrated by the sensitivity to strong miotics. The discovery of a few keratic precipitates should not, per se, lead to a radical change in the course of treatment.

### 3. TRUE SECONDARY GLAUCOMA

*Early Appearance of Ocular Hypertension.*—This group is made up of cases in which glaucoma may be assumed to be a direct result of the iridocyclitis. In cases of active iridocyclitis, the hypertension may be due either to the change in osmotic pressure of the aqueous or to mechanical blockage. The treatment should be directed to the uveitis. Mydriatics are useful either to break up the synechiae or to prevent new ones from forming during the acute phase. Atropine may be combined or alternated with 10 per cent phenylephrine hydrochloride to obtain maximum dilatation. Sometimes the tension will drop as soon as the synechiae have been freed. If the tension remains high, it is advisable to discontinue the atropine and to rely on milder mydriatics. Daily paracentesis may be helpful in keeping the tension down until the iridocyclitis is controlled. Retrobulbar injection of alcohol has been recommended by Weekers.[3]

Systemic treatment is directed toward the causation when the latter is known. Salicylates and fever therapy are useful in combating uveitis. Sorbitol may help to reduce the hypertension.

*Late Appearance of Ocular Hypertension.*—In this group may be included all cases of secondary glaucoma due to structural changes in the eye in which the uveitis is either healed or relatively quiescent. Since the hypertension constitutes the more important therapeutic problem, mild miotics and intravenous therapy may be employed. Surgical intervention is necessary in a large proportion of the patients. Iridectomy, iridencleisis or cyclodialysis are operations which have been used. The type of operation depends on the individual preference of the ophthalmologist and on the clinical characteristics of the specific case.

Certain cases of secondary glaucoma following cataract operation are due to sluggish uveitis. Two years ago, at the American Medical Association Convention, Chandler and Johnson[8] called attention to the mechanism involved in this condition. They advocated mydriatics, discission, transfixion of the iris and iridectomy.

### SUMMARY

For the purpose of treatment, the glaucoma associated with iridocyclitis is divided into three types. Emphasis is placed on the second type, which includes the syndrome of glaucomatocyclitic crises and other conditions in which posterior synechiae are not formed. Treatment in these cases differs from the conventional formula for secondary glaucoma. The use of mild miotics in combination with phenylephrine hydrochloride ("neo-synephrine hydrochloride") is advocated.

## ABSTRACT OF DISCUSSION

**Dr. Paul A. Chandler**, Boston: In regard to the specific types discussed by the authors, the first group consists in iridocyclitis occurring in a person with primary glaucoma. In the case cited the condition might well be classified residual glaucoma after subsidence of the uveitis. As the authors stated, iritis or uveitis occurring in a patient with known primary glaucoma is extremely rare, and few of us have had the opportunity of treating many of these patients. On the basis of experience with a single case, I feel that the glaucoma may be disregarded and atropine employed for the duration of the inflammation and then miotic therapy may be resumed. The syndrome designated as glaucomatocyclitic crises is an interesting one. The evidence of cyclitis is always mild. Even in the presence of a wide angle one sees an acute rise in tension in every way similar to that of primary acute glaucoma. In the authors' experience the tension fell with such widely different types of treatment as dilatation of the pupil, constriction of the pupil and the use of epinephrine. The fall in tension also occurred spontaneously. I have had a similar experience after a single paracentesis; tension may remain normal for weeks without further treatment. One wonders, therefore, whether the tension falls because of or in spite of treatment. When one has observed such a case long enough to be certain it is of this type, it should be considered as one of primary glaucoma and treatment planned accordingly, disregarding the keratitic precipitates and cells entirely. In chronic low grade iridocyclitis without posterior synechiae, the glaucoma may be mild or severe or may not occur at all. It is difficult to make a rule for treatment in these cases. The most effective treatment for the glaucoma is often arrived at by trial and error. It is perhaps wise to start off with atropine, with or without epinephrine, and finally miotics if necessary. In long-standing cases which show progressive cupping of the disk and loss of field, a trephining operation is justified and may be effective. The authors refer to iridocyclitis with posterior synechiae complicated by glaucoma. This may be a most difficult type to deal with. Sympathetic uveitis complicated by glaucoma is the worst example of this type. Dilatation of the pupil is essential in these cases. The epinephrine compounds may have great value, and, finally, palliative surgical treatment may have to be employed. The authors suggest conservatism in surgical procedures in these cases, and I am in most hearty agreement. Repeated paracentesis certainly favors the development of peripheral anterior synechiae. It is not the level of the tension per se, but what it does to a particular eye, that is important. One may be conservative as long as the function of the eye is not impaired by the tension. The final type discussed, residual glaucoma after the uveitis has quieted down, is to all intents and purposes primary glaucoma. In this type of case I have had better success with iridencleisis combined with sclerectomy than with other types of operation.

**Dr. Albert D. Ruedemann**, Detroit: Dr. Posner and Dr. Schlossman have drawn attention to the therapeutic differentiation in the treatment of the glaucomas. They stress the point that causative factors have not been found in the production of glaucoma. I would like to call attention to this, because that refers to effect and not cause. The cause of glaucoma has not been found, simply because ophthalmologists do not know how to look for it. Ophthalmologists refer patients to medical physicians who know nothing about the cause of glaucoma or what to look for. Therefore, we, as ophthalmologists, will have to change our method of investigation of the cause of glaucoma and search for the minimal pathologic changes in the other parts of the body, as well as in the eye. With the advent of gonioscopy and the further study by microscopy of changes in the eye, it would be advisable to investigate the rest of the host from the same point of view instead of trying to find the changes in roentgenograms of the chest and similar lesions. Minor changes in the blood and microscopic changes in the general system must be investigated. The therapeutic differentiation, as stressed by Dr. Schlossman, brings out one important point: the prolonged use of any miotic may in itself cause trouble, because the sensitivity to the drug used will develop in the patient. One should search for posterior synechiae; the pupil should be dilated with epinephrine, and periodically the eye should be allowed to recover from the prolonged use of miotics. In cyclitis, with and without glaucoma, it might be possible that there would be an irritating aqueous which, on exposure to light, undergoes a photochemical change, and that produces the irritating cyclitis. The use of any of the stronger miotics in some cases of glaucoma not only does not help prevent further increase in tension but will add to the increase in tension by the secondary reaction to the drug. The numerous drugs mentioned would make it advisable to know that there is a decided sensitivity to drugs in the eye, and, unless one is aware of this to start with, one not only does not prevent further rise in tension but may increase it.

**Dr. Harvey Thorpe**, Pittsburgh: I, too, have seen numerous cases of secondary glaucoma due to cyclitis. I was impressed, however, with the fact that in cases of uveoparotid syndrome, which is now considered to be sarcoidosis, there is a greater frequency of secondary glaucoma than in cases of subacute iridocyclitis. In the patients with milder forms of sarcoidosis of the eye there are often few keratic precipitates visible on the endothelium. On the other hand, if the patients are examined gonioscopically, one observes a greater incidence of keratic precipitates in the chamber angle than one would be led to suspect by the regular examination. Therefore, one might consider these cases from the etiologic point of view in searching for sarcoidosis, which has definite clinical pathologic manifestations. Drs. Posner and Schlossman, too, have pointed out that one must consider the possibility of the occurrence of cyclitis in a glaucoma host. In some cases of sarcoidosis a rise in intraocular tension subsided spontaneously, in spite of the fact that homatropine, pilocarpine and 10 per cent phenylephrine hydrochloride ("neo-synephrine hydrochloride") seemed to exert no influence. On the other hand, 2 of the patients with uncontrollable conditions required a wide basal iridectomy. I recall 1 case of bilateral glaucoma with subacute cyclitis in which the tension returned to normal after three weeks, although it had failed to react favorably to either miotics or mydriatics. This, too, was a case of uveoparotid fever, or sarcoidosis, as this syndrome is now understood. The patient, a woman of 20, had facial paralysis on the left side, followed by facial palsy on the other side about four weeks later. This was associated with enlargement of the parotid and maxillary glands, enlargement of the sternal shadow observed roentgenographically and some of the other symptoms associated with sarcoidosis. Her mother had narrow angle glaucoma in one eye associated with an intumescent lens. Of course, all factors bearing on these cases, including etiologic factors, must be considered when one thinks of diagnosis and therapy. I am sure that Drs. Posner and Schlossman have considered these. In some of my cases, foreign protein therapy, in the form of milk injections and typhoid injections, have been of extreme value.

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[8] Chandler, P. A., and Johnson, C. C.: A Neglected Cause of Secondary Glaucoma in Eyes in Which the Lens Is Absent or Subluxated, Arch. Ophth. **37**: 740-771 (June) 1947.

Dr. Conrad Berens, New York: I would like to ask two questions: First, what has been the experience of Dr. Posner and Dr. Schlossman in the management of cases of allergic disease? Recently, I had several patients who were allergic to all miotics. I have recently tried giving them "antistin" (2-[N-phenyl-N-benzyl-aminoethyl] imidazotin) or one of the other antihistaminic preparations along with the miotic. The second question pertains to the management of patients who have sympathetic disease. I am fortunate in having seen such a patient, who had tension varying from 45 to 70. Everything had been tried before I saw the patient, who was referred for consultation. There was no anterior chamber to speak of; I could not get fluid out even by aspiration. Realizing the cataract would have to come out some day, I performed an iridectomy, although I had never been successful with this procedure previously. When this did not control the tension, retrobulbar injections of alcohol were made. I do not hesitate to use 30 per cent alcohol, as first suggested to me by Dr. Edward Hartmann in 1940. It has been a helpful procedure in cases of uveitis with secondary tension. In patients whose vision is poor I use stronger solutions, that is, up to 50 and 70 per cent alcohol. For the patient I speak of, the tension remained elevated. Aspiration was again attempted, and when no fluid could be withdrawn I tried cycloelectrolysis. I have been using this procedure for two and a half years. Using a 2 mm. needle, my co-workers and I gave fifty punctures over the lower half of the globe, applying 5 milliamperes of current for five seconds. Surprisingly enough, there was practically no reaction. At the end of a week the patient returned to his home. The other day I saw the oculist who referred the patient. He said that the patient's tension was remaining down. This procedure should be given consideration. So far, we have observed less secondary congestion postoperatively than we had observed with cyclodiathermy. I have used this procedure in about 40 instances to date, although only twice in patients with cyclitis. One patient had a blind eye, which I wished to preserve. The procedure was only partially successful, and the tension remained about 40. Cycloelectrolysis is something one may consider when everything else fails.

Dr. Everett L. Goar, Houston, Texas: I am surprised that no one has brought up the question of secondary glaucoma due to iridocyclitis following cataract extraction, especially the capsulotomy type. This is one of the most troublesome types to treat, as it is no doubt often due to sensitivity to lens protein. One of the first signs of increased intraocular pressure is bedewing of the corneal epithelium, as seen by the biomicroscope in retroillumination. This not infrequently follows discission of a secondary membrane. I can recall producing uveitis and glaucoma in both eyes of a patient by discission and then treating one eye with a mydriatic and the other with a miotic.

Dr. Posner: I want to express my thanks to the discussers for the interest they have shown in this paper, which, after all, is only a modest attempt at analysis and classification of glaucoma associated with iridocyclitis. I can answer Dr. Berens' first question in regard to "antistin" (2-[N-phenyl-N-benzyl-aminomethyl] imidazotin). I have 1 patient, a physician, who is subject to frequent recurrences of glaucomatocyclitic crises. He has tried every antihistaminic drug, including "antistin," and apparently it has no effect. I cannot hope to comment on all the other discussions in the limited time. I would like to reemphasize the fact that, clinically, secondary glaucoma is not a single entity and that one must modify treatment according to the clinical behavior of the disease. I believe that a more careful analysis and study of glaucoma associated with mild cyclitis, which forms a borderline between primary and secondary glaucoma, may help in time to shed some light on the pathogenesis both of glaucoma and of cyclitis.

# TREATMENT OF THE FAT AND THE LEAN

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The extreme variation which body weight may undergo is indeed remarkable. There is a report, probably true, of a man weighing over 1,000 pounds (453.5 Kg.), while a subject weighing 779 pounds (353.3 Kg.) has been studied by competent observers.[1] At the other extreme, a 30 year old woman has recently been observed at the Mayo Clinic who weighed 44 pounds (20 Kg.) and was 5 feet 3.5 inches (161.3 cm.) in height.

While such spectacular deviations attract interest, lesser grades of underweight and overweight are of great importance in the health of the individual and are of much greater importance from the standpoint of public health than are sideshow freaks. In the latter half of life even moderate obesity is dangerous, and it has been shown that between the ages of 45 and 50 years 25 pounds (11.3 Kg.) of excess weight results in an increase of 25 per cent in mortality.[2] Greater degrees of obesity are a correspondingly greater hazard to life and health. Obesity has been found to be associated with an increased incidence of hypertension, diabetes, cancer, heart disease, nephritis, atherosclerosis, toxemia of pregnancy, cirrhosis of the liver, emphysema and varicose veins;[3] it seems certain that correction or prevention of obesity would greatly diminish the incidence of these degenerative diseases for which we often have little specific therapy.

Underweight is less strikingly related to disease and increased mortality, and yet it has been demonstrated

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Read at the Interim Session of the American Medical Association, Cleveland, Jan. 7, 1948.

From the Mayo Foundation (Dr. Gastineau, Fellow in Medicine) and the Mayo Clinic (Dr. Rynearson and Mrs. Irmisch).

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2. Newburgh, L. H.: Obesity, Arch. Int. Med. **70**: 1033-1096 (Dec.) 1942.

3. Dublin, L. I.: Influence of Weight on Certain Causes of Death, Human Biol. **2**: 159-184 (May) 1930.

that the underweight person under the age of 30 has an increased susceptibility to tuberculosis.[3] It has been said that the greatest life expectancy occurs in those persons who are slightly overweight up to the age of 30, of average weight from ages 30 to 40 and distinctly underweight thereafter.[4]

For all these reasons it would be an important advance in the health of the nation if all physicians were alert to the dangers of overweight and if they applied a missionary zeal to the correction of this condition.

## ETIOLOGIC FACTORS

Leanness and obesity have a common cause: a disproportion between caloric intake and caloric requirement. If the person eats more than he requires to maintain normal weight he becomes obese; if he eats less, he becomes thin.

*Psychologic Aspects.*—The causes for undereating and overeating in the presence of an adequate supply of food are to some extent conjectural, but one can be certain that emotions, training and habit exert a considerable influence.

If mother prides herself on setting a good table, if dad eats heartily and with obvious enjoyment, if the household attitude and feeling is that good food in generous quantities is the end and purpose of life, it is not surprising that an entire family may become obese without the mediation of genes. Thus, imitation of elders and attitudes acquired in childhood may govern eating habits in later life.[5] In addition to variations in body weight caused by simple training and habit, there are those caused by the neuroses and psychoses. Investigations by a number of psychiatrists of the lean and the fat have suggested a strikingly high incidence of psychologic aberrations,[6] and yet the reason is not always apparent why a certain conflict or anxiety may cause polyphagia in one person, anorexia in another and have no effect on the appetite of a third.[7] The apparently increased incidence of neuroses in association with obesity or leanness may be open to some question, since most such investigations have not included psychiatric studies of persons of normal weight for control purposes.

*The Hypothalamus.*—We have indicated how the cerebral cortex may play an important role in control of weight through the effect of emotions and training on appetite. More primitive portions of the nervous system undoubtedly exert some influence on appetite on a more automatic level, however.

In recent years experiments on animals have shown that destruction of certain nuclei in the posterior portions of the hypothalamus will cause a voracious appetite, so that the intake of food is limited only by the capacity of the gastrointestinal tract. Extreme obesity quickly and invariably develops, but if the animal is fed amounts equivalent to those consumed by control animals, the weight remains normal.[8] Such experiments strengthen the earlier hypothesis of Wilder[9] that the diencephalon contains a center for the control of appetite, and one might infer that a "constitutional tendency" toward leanness or obesity might depend on the sort of hypothalamus that one happens to inherit.

These experiments also suggest that the obesity which Fröhlich described in 1909 as the result of an intracranial lesion was the consequence of hypothalamic injury.[10] The terms "Fröhlich's syndrome" and "adiposogenital dystrophy" both have been applied frequently to obese but healthy adolescent boys whose genitals are partly obscured by fat. When these terms are used to describe the appearance of such persons, it carries the unfortunate implication of some fundamental endocrinologic or intracranial disorder. One might postulate a temporary derangement of hypothalamic function without demonstrable structural change to explain the clinical appearance of such boys, but no convincing evidence for this exists. For these reasons we would restrict the terms "Fröhlich's syndrome" and "adiposogenital dystrophy" to those obese, sexually immature males who are definitely older than the age of normal puberty and who have additional evidence of a lesion involving the region of the hypothalamus and hypophysis.

*Endocrine Factors.*—In the past, endocrine disorders have been the favorite scapegoats on which to place the blame for both obesity and leanness, and there have been attempts to diagnose many varities of endocrinopathy by slight variations in the distribution of body fat. Actually, endocrine disorders are rarely a cause of either pronounced obesity or leanness. Distribution of fat is of little diagnostic significance except in the instances of Cushing's syndrome and progressive lipodystrophy.

Lipodystrophy is a rare nonendocrine condition characterized by the unequal distribution of fat, large masses appearing in some portions of the body and atrophy of the subcutaneous tissues in others.

Cushing's syndrome is now considered to be a syndrome of hyperfunction of the adrenal cortex, and it is usually but not invariably accompanied by an increase in weight. The appearance of such a patient is rather distinctive, however, and it is only in these exceedingly rare instances that obesity is the consequence of adrenal cortical dysfunction.

The frequent association of obesity with functioning islet cell tumors of the pancreas is the result of the increased intake of food which these patients find necessary to relieve attacks of hypoglycemia. Anxiety may at times cause symptoms of hypoglycemia which are associated with moderate lowering of the concentration of blood sugar in the absence of an islet cell tumor; however, there is no such consistent association of obesity with this type of functional hypoglycemia as there is with the hypoglycemia resulting from islet cell tumor.

Hypothyroidism has been blamed frequently for obesity, but no conclusive evidence for this has been advanced. Plummer[11] in a study of spontaneous myxedema found no tendency toward obesity; furthermore, the basal metabolic rate in obesity is ordinarily found to lie within quite normal limits.[12] There is no conclusive evidence that obesity may result from lesions or dysfunction of the hypophysis, although almost every possible combination of hyperfunction or hypofunction of any or all of the three lobes of this gland has been suggested as a cause for obesity. Although hypogonadism has been observed to cause obesity consistently in castrated animals, no such certain relationship appears to exist in human beings. The evidence for "pineal obesity" is equivocal, and it is entirely possible that the association of pineal tumor and obesity may be the result of hypothalamic damage. Dercum's disease or adiposis dolorosa has not been established as an entity, and the term should be discarded.

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[9] Wilder, R. M.: The Regulation of the Weight of the Body, Internat. Clin. **1:** 30-41 (March) 1932.

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[11] Plummer, W. A.: Body Weight in Spontaneous Myxedema, Tr. Am. A. Study Goiter, 1940, pp. 88-98.

When confronted with a patient weighing 60 to 70 per cent of his ideal weight, with no cause for his emaciation apparent, one should think immediately of anorexia nervosa (the figure). This syndrome is characterized by the following sequence of events. The patient is usually a woman below the age of 30 in whom there develops an aversion, of psychologic origin, to food, the exact mechanism of which often is not clear. This aversion to food leads to slow starvation and emaciation, which lead in turn to a functional hypopituitarism which is reversible by means of dietary therapy. These patients display a surprisingly great amount of physical and mental activity in spite of advanced emaciation. A low basal metabolic rate, an appearance of somewhat accelerated aging, amenorrhea, pallor and a tendency toward a growth of fine hair over the body and face are among the findings.[13]

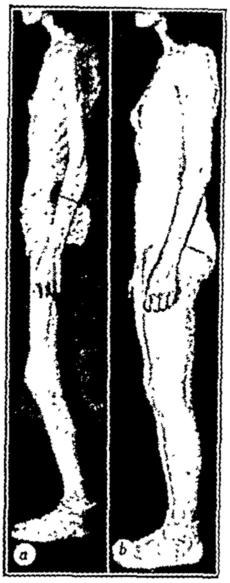

Fig. 1.—A characteristic case of anorexia nervosa. This 20 year old woman made a good response to feeding. (*a*) Before treatment, Oct. 23, 1944; weight 61 pounds (27.7 Kg.). (*b*) After treatment, June 14, 1946; weight 111 pounds (50.3 Kg.). (From Berkman, J. M.; Weir, J. F., and Kepler, E. J.: Clinical Observations on Starvation Edema, Serum Protein and the Effect of Forced Feeding in Anorexia Nervosa, Gastroenterology **9**: 357-390 (Oct.) 1947.

In hypopituitarism secondary to an organic lesion there is rarely loss of weight comparable to that observed in anorexia nervosa; Sheehan and Murdoch[14] in their extensive study of post-partum pituitary insufficiency failed to record emaciation as a symptom. The diagnostic term "Simmonds' disease" requires a clarification that is beyond the scope of this paper; it is sufficient to say that pituitary insufficiency rarely is found to be the cause of emaciation.

*Metabolism of Energy.*—Many abnormalities of the metabolism of energy have been postulated as causes of both obesity and leanness, but none have been convincingly demonstrated. A widely held but erroneous opinion is that the gastrointestinal tract of obese person absorbs a greater proportion of the food passing through it than does that of a normal person.[2] Similarly, it is commonly but wrongly believed that thin persons are thin because they fail to absorb food normally.[15] It is only in those patients with sprue or similar syndromes that inadequate absorption may be assumed to be a cause of leanness.

*Constitutional Factors.*—The possibility of an inherited tendency to obesity is suggested by observations of strains of obese yellow rats in which obesity tends to be inherited in a dominant manner.[16] It is generally agreed that obesity[17] and leanness each have a tendency to occur with greater frequency in certain families than in others. But it is difficult to hazard a guess whether genes or environment exerts the greater influence on eating habits. It is likely, however, that in some persons inheritance is of the greater importance, while in others, or in the same persons under different circumstances, psychologic and environmental influences are the stronger.

It is a common rationalization of obese patients to say that they cannot help being fat "because my parents were big people," and they fear that to reduce to a normal weight would be to endanger their health, since they were "meant to be fat." Such patients should be told emphatically that their fat is no less dangerous to them than to those without a hereditary tendency to obesity and that diet will be no less efficacious in their cases.

Many other hypotheses as to the cause of obesity and leanness have been advanced, but they are not well enough founded to be considered in this brief article.

### CONTRAINDICATIONS TO LOW CALORIC DIETS

Contraindications to reduction are few. It is usually best, however, to postpone reduction in patients who have peptic ulcer or tuberculosis until the activity of the process is abated, at which time a diet of 1,200 to 1,500 calories adapted to the needs of the patient may be prescribed. Hypertension and old age certainly are not contraindications to reduction but rather are urgent reasons for it.

### THERAPY

*Diet.*—The treatment for both obesity and leanness is essentially the same: a diet and such psychotherapy as is necessary to cause the patient to adhere to it.

When the amount of weight to be lost is large or when a rapid loss is important, diets of 600 to 1,000 calories, in which the portions of food are weighed, are usually prescribed. When a less rapid rate of loss is required, diets of 1,000 to 1,500 calories, in which the food is measured by volume, may be used. In tables 1 and 2 are given 1,000 calory and 3,000 calory diets for which the size of the portions of food is stated in terms of both weight and volume. Reduction diets in greater variety are given elsewhere.[18] Although the weighing of food seems a difficult and tedious procedure, it is actually a rather simple task if a scale with a movable face, such as that designed for the use of diabetics, is utilized. The greater accuracy attained when the food is weighed usually justifies the somewhat greater effort because the actual caloric intake frequently will be 200 or more calories in excess of that prescribed if the patient measures his food by volume.

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TABLE 1.—*Day's Allowance of Food*

| 1,000 Calory Diet | 3,000 Calory Diet |
|---|---|
| 1. Lean meat, fish, fowl, dry cottage cheese, 150 Gm. (5 oz.), and 1 egg. Must be free from fat, cooked without fat (no gravy) | Any meat, fish, fowl, cheese, 150 Gm. (5 oz.), and 1 egg. Cooked in any manner |
| 2. Skim milk or buttermilk, 480 Gm. (1 pint) | Half milk and half 20% cream, 720 Gm. (¾ quart). May be plain or flavored |
| 3. Bread or plain rolls, 60 Gm. (2-3 slices) | Bread, rolls, pancakes, hot breads, 120 Gm. (4-6 slices) |
| 4. Cereal, none | Cereal, 15 Gm. dry (½ cup as served) |
| 5. Starchy foods such as potato, beans (dried or lima), corn, hominy, macaroni, noodles, rice, spaghetti, none | Starchy foods (see 1,000 calory diet), 200 Gm. (1 cup) |
| 6. Vegetables (except above), 400 Gm. (2 cups). Canned, cooked, frozen or raw | Vegetables, any, 300 Gm. (1½ cups). Canned, cooked, dried, frozen or raw |
| 7. Fruits (see list below), 3 servings including 1 of citrus fruit or juice | Fruits, any. At least 100 Gm. (½ cup) citrus fruit or juice plus any other canned, cooked, dried, frozen or raw |
| 8. Desserts, none except saccharin-sweetened gelatin dessert, rennet dessert or custard made with skim milk | Desserts, 200 Gm. (2 servings) of cake, cookies, ice cream, pie, pastry, pudding |
| 9. Sweets, none except saccharin | Sweets, at least 3 tbsp. sugar, jam or jelly |
| 10. Soups, none except clear broth or soup made from vegetable or skim milk allowance | Any thickened or cream soup, 100-200 Gm. (½-1 cup |
| 11. Fat (butter, margarine, mayonnaise or oil), 15 Gm. (1 level tbsp.) and 20% cream, 30 Gm. (2 tbsp.) | Fat (butter, margarine, mayonnaise or oil including that used in cooking), 75 Gm. (5 level tbsp.), and 20% cream, 75 Gm. (⅓ cup) in addition to 360 Gm. in the milk |
| 12. Miscellaneous (black coffee, clear tea, herbs, lemon juice, salt, spices, vinegar), as desired | Miscellaneous (coffee, tea, carbonated beverages, herbs, salt, spices, vinegar), in moderation |

Servings of Fruit Allowed on 1,000 Calory Diet

| Fresh | Water-Packed Canned |
|---|---|
| ½ apple | ½ cup apple sauce |
| 1 apricot | 4 halves apricots |
| ½ banana, small | 1 cup blackberries |
| ½ cup blackberries | ½ cup blueberries |
| ⅓ cup blueberries | 1 cup cherries, red or white |
| ½ cup cranberries | ½ cup cherries, black |
| ⅓ cup currants | ½ cup fruit salad |
| ½ grapefruit | ½ cup grapefruit juice |
| ½ cup grapefruit juice | ⅓ cup Kadota figs |
| ⅙ honeydew melon | 1 cup loganberries |
| ⅓ cup huckleberries | ½ cup orange juice |
| 1 lemon | 1 cup peaches |
| 2 limes | 2 halves pear |
| 1 orange, medium | 2 rings pineapple |
| ½ cup orange juice | ½ cup pineapple juice |
| 1 peach | 2 plums |
| ½ pear | 1 cup raspberries |
| 2 rings pineapple | 1 cup strawberries |
| 1 plum | ½ cup white grapes |
| ⅓ cup raspberries | |
| 1 cup rhubarb | |
| ½ cup strawberries | |
| ¼ slice watermelon | |

The success of dietary therapy is dependent in large part on the patient's knowledge of his diet, which in turn depends on painstaking and careful instruction. Such instruction provides the additional benefit of impressing the patient with the importance of diet.

Many regimens are unsuccessful because the doctor gives his patient a printed diet list with little or no explanation and instruction. Menus which are so limited as to be difficult to obtain either at home or in a restaurant are further reasons for failure. Diets given in tables 1 and 2 permit an almost infinite choice of foods, thereby avoiding monotony and some of the difficulties associated with many diets. It is desirable in the course of instruction to have the patient write out several possible menus adapting the diet to his racial and individual preferences, his economic level and his daily program of work.

TABLE 2.—*Examples of 1,000 Calory and 3,000 Calory Diets*

| | | 1,000 Calory Diet | | 3,000 Calory Diet | |
|---|---|---|---|---|---|
| Foods Allowed | Sample Menu | Wt., Gm. | Approximate Measure (Volume) | Wt., Gm. | Approximate Measure (Volume) |
| | | BREAKFAST | | | |
| Fruit, citrus | Grapefruit | 100 | ½ medium | 100 | ½ medium |
| Cereal | Whole grain cereal | ... | ............ | 15 | ½ cup |
| Egg | Egg, soft cooked | 50 | 1 | 50 | 1 |
| Bacon | Bacon | ... | ............ | 15 | 2 strips |
| Bread | Whole wheat toast | 20 | 1 slice | 40 | 2 slices |
| Butter | Butter | 5 | 1 tsp. | 14 | 2 squares |
| Beverage | Coffee | ... | 1 cup | ... | 1 cup |
| Cream, 20% | Cream | 30 | 2 tbsp. | 75 | ⅓ cup |
| Sugar | Sugar | ... | ............ | 15 | 1 tbsp. |
| Jelly | Jelly | ... | ............ | 20 | 1 tsp. |
| | | DINNER | | | |
| Soup | Cream of potato soup | ... | ............ | 100 | ½ cup |
| Meat or substitute | Roast beef | 75 | 2½ oz. | 60 | 2 oz. |
| Potato or substitute | Mashed potato, gravy | ... | ............ | 100 | ½ cup |
| Vegetable | New cabbage | 100 | ½ cup | 75 | ⅓ cup |
| Salad | Sliced tomato | 100 | 1 medium | 75 | ½ large |
| Salad dressing | Mayonnaise | ... | ............ | 15 | 1 tbsp. |
| Fruit (list, table 1) | Sliced orange | 100 | 1 medium | ... | ............ |
| Dessert | Vanilla ice cream | ... | ............ | 70 | ⅓ cup |
| Skim milk | Skim milk | 240 | ½ pint | ... | ............ |
| Milk, ½ cream | Milk, ½ cream | ... | ............ | 240 | ½ pint |
| Bread | Whole wheat bread | 20 | 1 slice | 40 | 2 slices |
| Butter | Butter | 5 | 1 tsp. | 14 | 2 squares |
| | | SUPPER | | | |
| Soup | Cream of pea soup | ... | ............ | 100 | ½ cup |
| Meat or substitute | Cold sliced ham | 75 | 2½ oz. | 60 | 2 oz. |
| Potato or substitute | Baked potato, butter | ... | ............ | 100 | 1 medium |
| Vegetable | Green beans | 100 | ½ cup | 75 | ⅓ cup |
| Salad | Celery and carrot sticks | 100 | 5-6 sticks | 60 | 3-4 sticks |
| Fruit (list, table 1) | Water-packed pears | 100 | 2 halves | ... | ............ |
| Dessert | Chocolate pudding | ... | ............ | 100 | ½ cup |
| Skim milk | Skim milk | 240 | ½ pint | ... | ............ |
| Milk, ½ cream | Milk, ½ cream | ... | ............ | 240 | ½ pint |
| Bread | Bread | 20 | 1 slice | 40 | 2 slices |
| Butter | Butter | 5 | 1 tsp. | 14 | 2 squares |
| Beverage | Tea with lemon | ... | 1 cup | ... | ............ |

Approximate Composition of Diets

| | Unit | 1,000 Calory Diet | 3,000 Calory Diet |
|---|---|---|---|
| Protein........................ | Gm. | 70 | 90 |
| Fat........................ | Gm. | 40 | 185 |
| Carbohydrate.............. | Gm. | 100 | 240 |
| Calories..................... | .... | 1,040 | 3,000 |
| Calcium..................... | Mg. | 850 | 1,280 |
| Iron........................ | Mg. | 11 | 14 |
| Vitamin A.................. | I.U. | 6,100 | 11,300 |
| Thiamine.................. | Mg. | 1.4 | 1.8 |
| Riboflavin................. | Mg. | 1.7 | 2.4 |
| Niacin..................... | Mg. | 11 | 15 |
| Ascorbic acid............. | Mg. | 180 | 145 |

To insure inclusion of these essential factors, the physician should prescribe a multivitamin capsule to be taken daily by the reducing patient. Salt and water may be taken in whatever quantities the patient desires.

Underweight patients require 3,000 to 3,600 calories daily, depending on their activity and body size, in order to gain weight at an appreciable rate.

Just as in the case of the obese patient, careful dietary instruction is important in the treatment of the underweight person. A 3,000 calory diet suitable for an ambulatory underweight person is given in tables 1 and 2.

For the patient with frank anorexia nervosa the services of a dietitian are most helpful. An estimate of the habitual caloric intake of these patients should be made by the dietitian. This usually will be found to be within 900 and 1,300 calories. The patient is then fed a diet containing 300 calories more per day than the estimated habitual intake, and at intervals of three to ten days as tolerated the diet should be increased by steps of 300 calories. The usual sequence is 1,300, 1,600, 1,900, 2,200, 2,500 and 3,200 calories.[10] Before treatment is started the patient should be told frankly that there will be a certain amount of abdominal discomfort with the increased diet but that this will become less and disappear with time. The patient should remain under supervision of the dietitian until the caloric intake has been stepped up at least twice, so that some measure of success is assured. Then the dietary instruction entails only two or three more steps to attain the necessary 3,000 or more calories for continued gain in weight. Constant encouragement and reassurance are necessary throughout the course of treatment. As in the treatment of obesity, the success of dietary therapy of anorexia nervosa is proportional to the strength of the physician's conviction that diet will succeed and to the ability of the physician to transmit that conviction to the patient.

Gain in weight on high caloric regimens and loss on reduction diets frequently proceed in a stepwise fashion, so that periods of as long as seven to ten days without appreciable change in weight followed by rapid gains or losses may occur.[20] This phenomenon is most likely a reflection of variations in amount of extracellular fluid and is no cause for discouragement, since a normal water balance will ultimately be attained. Restriction of salt may diminish the magnitude of this phenomenon but will have little or no effect on the final loss or gain in weight. These periods in which the weight fails to change, inaccurately measured diets and failure to allow for the energy expended in physical work or in useless movements are three of the reasons why some physicians have expressed the opinion that there are certain obese persons whose weight cannot be reduced by diet alone and that some lean patients will fail to gain weight on a high caloric diet.

With rigid adherence to a properly planned diet and with patience, one can confidently expect response in practically every case of leanness or obesity. The emaciation secondary to hyperthyroidism or to impaired gastrointestinal function, such as with sprue or chronic relapsing pancreatitis, constitutes an exception to this rule.

*Psychotherapy.*—It has recently been the fashion to ascribe obesity and leanness to psychologic and psychiatric factors and to emphasize psychotherapy in treatment. While not wishing to minimize the importance of these factors, we should like to remind the reader that many of these patients fail to demonstrate significant psychologic deviation and require no formal psychiatric therapy. These persons should be warned frankly of the dangers of their obesity or leanness and told that the only effective treatment is proper diet. The obese patient should be reassured that the reduction program will not harm him and that a familial tendency to, or the long duration of, obesity is no bar to therapy. He should be warned to disregard relatives and well-meaning friends who unconsciously, unintelligently or jealously associate loss of weight with ill health and tell him daily that "this diet makes you look terrible." The patient should be carefully instructed in his dietary program; simply handing him a sheet of instructions and telling him to follow them usually fails because the patient's understanding of the directions is incomplete and because the offhand manner of the physician lessens the patient's respect for the diet. The success achieved is usually proportional to the confidence of the physician in the dietary program. Regular office visits are important to maintain the morale and the determination of the patient to adhere to the diet. Limitation of space prevents discussion here of the problems posed by the patient with significant psychologic aberrations. Discussion of such problems may be found elsewhere.[21]

*Other Therapy.*—In obesity certain adjuvants to dietary therapy have been suggested.

It has been demonstrated that amphetamine sulfate ("benzedrine sulfate") and its dextrorotatory isomer, "dexedrine," will diminish appetite.[22] It is to be emphasized that amphetamine affects obesity only through the mediation of appetite, and the compulsive eater may continue to eat excessively and therefore may derive no benefit.

A certain degree of tachycardia, hypertension and elevation of the metabolic rate for several hours are known to follow administration of single large doses of amphetamine.[23] Although these undesirable effects may occur after large isolated doses, the hazard is probably less than appears at first glance. First, such cardiovascular effects of these sympathomimetic drugs tend to become lessened with continued administration.[24] Second, relatively small doses which would cause minimal circulatory effects should be adequate to "take the edge" from the appetite. In view of the adverse effects on the cardiovascular system, it would seem doubtful wisdom to increase the dose if customary amounts fail to alter eating habits, since the circulatory system of the obese person is already laboring under an increased strain.[25] The dose of racemic amphetamine sulfate used by Harris, Ivy and Searle[22] was 10 to 15 mg. three times a day, while the dose of the dextrorotatory form was half that. These amounts probably should be regarded as maximal, particularly since Albrecht[26] found doses of 5 mg. of racemic amphetamine sulfate to be effective.

Most physicians do not believe it wise to prescribe such medicines without dietary instruction because the patient, anxious to lose weight, may select a diet inade-

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[19] Boothby and Sandiford.[12] Rynearson and Gastineau.[18]

[20] Newburgh.[2] Berkman, J. M.; Weir, J. F., and Kepler, E. J.: Clinical Observations on Starvation Edema, Serum Protein, and the Effect of Forced Feeding in Anorexia Nervosa, Gastroenterology 9: 357-390 (Oct.) 1947.

[21] Footnote 6. Weiss, E., and English, O. S.: Psychosomatic Medicine: The Clinical Application of Psychopathology to General Medical Problems, Philadelphia, W. B. Saunders Company, 1943, pp. 233-238 and 335-349.

[22] Harris, S. C.; Ivy, A. C., and Searle, L.: The Mechanism of Amphetamine-Induced Loss of Weight: A Consideration of the Theory of Hunger and Appetite, J. A. M. A. **134**: 1468-1475 (Aug. 23) 1947.

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[26] Albrecht, F. K.: The Use of Benzedrine Sulfate in Obesity, Ann. Int. Med. **21**: 983-989 (Dec.) 1944.

quate in such essentials as protein or calcium, or he may rely on the drug and continue to eat freely.

We rarely find it necessary to use such drugs because appetite usually diminishes in the first week of dietary restriction, and we avoid their use because the prescribing of any drug removes the emphasis from diet. We do not wish to give the impression of opposition to these drugs but desire to reemphasize the paramount importance of diet in the therapy of obesity.

Early in the study of obesity it was erroneously assumed that hypothyroidism was a frequent cause of overweight. From this hypothesis it was a logical step to prescribe desiccated thyroid as replacement therapy. But since hypothyroidism has not been shown to be causally related to obesity, this justification for the use of thyroid has been removed.

Some practitioners have even used large doses of thyroid to create a state of hyperthyroidism, but in consideration of the dangerously toxic effects of this substance on the heart,[27] such a practice is not advised.

In short, we do not advise the use of thyroid in the treatment of obesity. Small doses seem to be inactivated,[28] while larger doses exert a direct toxic action on a heart[27] that is already burdened by the stresses imposed by obesity.[25]

Exercise has been demonstrated to be an inefficient means of disposing of an excessive intake of energy.[2] Newburger has estimated that a patient must walk 36 miles (58 kilometers) to rid himself of 1 pound (0.5 Kg.) of adipose tissue. Exercises, massage and local applications of heat have no effect on local deposits of fat.[29] Diuretics and heat therapy designed to increase perspiration may give both the physician and the patient a false sense of achievement by causing the excretion of a few pounds of water. Laxatives and colonic irrigations have not been shown to be effective in diminishing the absorption of food and are of no apparent benefit. A variety of other medications, such as atropine, digitalis, various endocrine preparations, both salts and glucose, has been used in obesity with no proved benefit. Dinitrophenol is no longer used because of its toxicity.

The only important adjuvant to diet in the correction of leanness is rest. Rest diminishes output of energy, allowing the increased intake of food to be retained in the form of body tissue. Rest also often may be employed to aid the tense anorexic patient to eat more freely. Vitamin deficiencies are unusual in association with the ordinary leanness seen in this country, and there is no convincing evidence of a strong appetite-stimulating action of any of the vitamins. For this reason it is not necessary to prescribe supplementary vitamins for the underweight person unless there is a history or clinical evidence of a deficiency. A well planned diet contains all necessary vitamins (table 2). Adding a multivitamin preparation can do no harm, however.

Insulin is a strong stimulant to the appetite when given in amounts sufficient to cause hypoglycemic symptoms, but benefits from such a practice scarcely justify the means. Doses of insulin insufficient to cause hypoglycemic symptoms have not been shown to stimulate the appetite[30] except by the device of suggestion or the threat "now you've got to eat or go into insulin shock."[31] For these reasons we rarely employ insulin as a stimulant to the appetite.

### SUMMARY

Overweight is a serious menace because it appears to increase the incidence of many degenerative diseases. A reduction program is the most important weapon for combating such diseases. Underweight is reported to increase the susceptibility to tuberculosis but moderate underweight is a desirable state in the person past 40 years of age.

The cause of obesity and leanness is a disproportion between caloric intake and caloric requirement. The therapy of obesity or leanness consists of the correction of this disproportion by means of diet.

Administration of amphetamine in appropriate cases may occasionally be a useful adjuvant to dietotherapy, while psychotherapy is often of greatest importance in the case of underweight or overweight persons.

Diuretics, atropine, digitalis, desiccated thyroid and various endocrine preparations all accomplish little in reduction programs. Massage and exercises are ineffective in removing localized deposits of fat. Exercise is an inefficient means of disposing of excessive intake of energy. Insulin is impractical and vitamins ordinarily are ineffective in stimulating the appetite of lean persons.

The diagnostic terms "Simmonds' disease" and "Fröhlich's syndrome" (adiposogenital dystrophy) have been widely used, but their use is rarely justified. Dercum's disease (adiposis dolorosa) has not been demonstrated to be an entity.

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# Clinical Notes, Suggestions and New Instruments

## DELAYED BRACHIAL PLEXUS PALSY DUE TO UNUNITED FRACTURE OF THE CLAVICLE

### Report of a Case

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The discovery of the syndrome of the ruptured cervical disk has greatly accentuated interest in arm and shoulder pain. Arthritis, neuritis, cervical rib, aneurysm, trauma and the involvement of the brachial plexus by benign or malignant tumors have long been familiar. Much has been written about scalenus anticus syndrome. The following case is unusual because of the symptoms which developed several years subsequent to the injury and nonunion of a fractured clavicle.

### REPORT OF A CASE

J. G., a 46 year old white veteran of World War II, was admitted to the Albany Hospital with the chief complaint of weakness and numbness of the right hand. Ten years previously he had sustained a fracture of the right clavicle. After several days of procrastination he consulted a physician, who bandaged his arm tightly to his side with the elbow flexed. A lump per-

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[27] Rasmussen, H.: Influence of the Thyroid Hormone on Heart and Circulation, Acta med. Scandinav. (supp.) **115**: 1-202, 1941.

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[31] Freyberg, R. H.: A Study of the Value of Insulin in Undernutrition, Am. J. M. Sc. **190**: 28-42 (July) 1935.

From the Department of Neurosurgery, Albany Medical College, Albany, N. Y.

sisted at the site of fracture but was not painful and did not in any way interfere with his work as a laborer. Three years before admission, while serving overseas in the Army, he noted that his entire right arm became numb or felt "asleep" whenever he carried a pack on long hikes. As soon as the pack was removed the arm would again feel normal. He observed no weakness or color changes of the limb at that time. A year later, he first became aware of numbness of the fifth digit of the right hand. During the following year this numbness spread to involve the third and fourth digits as well as the corresponding volar and dorsal surfaces of the hand. There was no change in the intensity of the sensory disturbance. Six months prior to admission he experienced weakness of the right hand, which steadily increased. He found difficulty in opposing the thumb to the fifth finger, in holding a pencil and in the performance of finer movements; it became necessary for him to change from a straight edge to a safety razor for shaving. He stated that he had no pain in the hand, forearm, arm, shoulder or neck. Atrophy of the interosseus muscles was observed two months before admission. Past and family histories were noncontributory.

Examination revealed a robust compactly built man of small stature. The blood pressure was 120 systolic and 90 diastolic in both arms. With the arms hanging at the sides, the radial pulse on the right became decidedly reduced in volume and at times imperceptible. With the arms held horizontally, the two radial pulses were equal. The veins, more notably the cephalic, were comparatively distended in the right arm. No fever or color changes were observed. A bony nontender mass was present on the middle third of the right clavicle, almost doubling its size over a distance of 4 or 5 cm. Pressure on this mass produced an abnormal amount of movement and some crepitus. Motions of the neck and shoulder joint were normal. Slight atrophy of the interossei was present in the right hand, especially of the first dorsal. The right grip was definitely weaker than the left, particularly of the third, fourth and fifth fingers. (The patient was right handed.) Hypoesthesia and hypalgesia were present over the usual ulnar distribution on the right. Fasciculations were not observed. The myotatic reflexes were equal and active bilaterally. The results of the remainder of the general physical and neurologic examinations were negative.

*Laboratory Data.*—Results of routine laboratory studies were all within normal limits. Roentgenographic examination revealed an overriding ununited fracture at the junction of the outer and middle thirds of the right clavicle (fig. 1). On fluoroscopy motion was readily observed on abduction or adduction of the arm. The cervical part of the spine was normal, and no cervical rib was demonstrated.

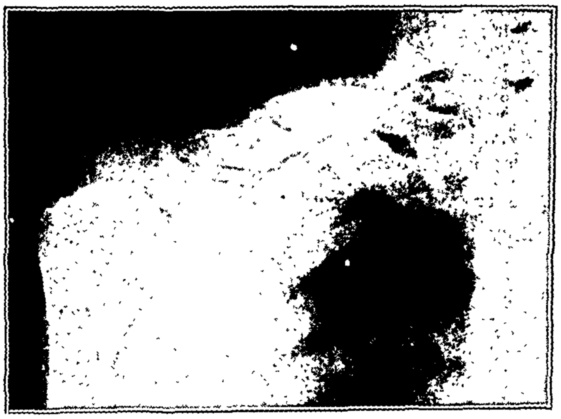

Fig. 1.—Roentgenogram showing the ununited fracture of the clavicle with excessive callus.

*Operation.*—On Dec. 2, 1947, the right clavicle was exposed under general anesthesia. A large glistening callus and a great deal of scar tissue surrounded the old fracture site. Most of the callus surrounded the distal fragment, which was displaced under the proximal fragment. This large mass (fig. 2) pressed directly on the subclavian artery and the lower trunk of the brachial plexus. Both fragments and the callus were resected with the Gigli's saw, thus leaving only the proximal and distal quarters of the clavicle. The wound was closed with interrupted sutures of fine silk without drainage. The postoperative course was uneventful. The sutures were removed on the fourth postoperative day, and the patient was discharged on the fifth day after operation.

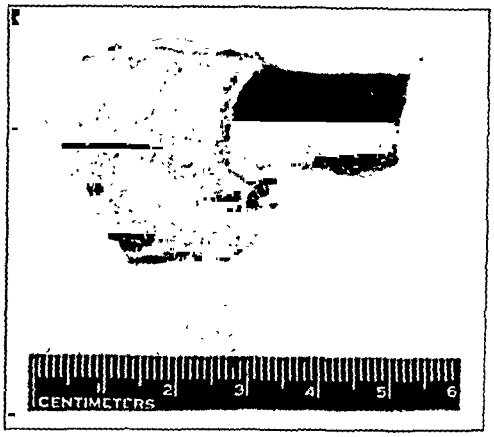

Fig. 2.—Portion of lateral fragment which overlay the brachial plexus.

*Postoperative Course.*—Both the sensory and motor symptoms disappeared rapidly and at the time of reporting (seven months later) were hardly discernible. Within four weeks he returned to heavy labor and apparently suffered little or no inconvenience attributable to the resection of the midportion of his clavicle. The radial pulse was palpable with the arm at the side, and the arm veins were no longer distended.

## COMMENT

While ununited fractures of the clavicle are generally considered unusual, we have been unable to find a satisfactory statistical study of their incidence. They are commonest at the juncture of the middle and outer thirds. Symptoms of brachial plexus involvement occurred in 6 of 9 cases reported by Berkheiser,[1] but in only 3 of 20 cases reported by Ghormley and his colleagues.[2] Shelden [3] made similar observations. Little stress was made in these reports of the time interval between the injury and onset of brachial plexus symptoms.

The costoclavicular space which, under normal conditions, is more than adequate to accommodate the brachial plexus and subclavian vessels, is seriously impinged on in ununited fractures by the inward and downward displacement of the proximal end of the distal fragment. When this space is further encroached on by the formation of callus, the structures passing through it are compressed. These factors plus the motion in the false joint produced are responsible for the symptoms which occur. In the case reported herein the long oblique distal fragment and its callus extended downward and medially and underrode the medial fragment when the arm was adducted; this probably accounted for the obliteration of the radial pulse in arm at side posture and its reappearance when the arm was abducted.

Subperiosteal resection of the middle third of the clavicle did not result in significantly impaired function, but produced immediate and permanent relief of symptoms.

## SUMMARY

An instance of delayed palsy of the brachial plexus and compression of the subclavian vessels by an ununited fracture of the middle part of the clavicle is reported. Rapid relief of symptoms followed resection of the two medial quarters of the bone.

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[1] Berkheiser, E. J.: Old Ununited Clavicular Fractures in the Adult, Surg., Gynec. & Obst. 64: 1064 (June) 1937.

[2] Ghormley, R. K.; Black, J. R., and Cherry, J. H.: Ununited Fractures of the Clavicle, Am. J. Surg. 51: 343 (Feb.) 1941.

[3] Shelden, C. H.: Personal communication to the authors, February 1948.

# Council on Pharmacy and Chemistry

## REPORT OF THE COUNCIL

*The Council has authorized publication of the following report.*
Austin Smith, M.D., *Secretary.*

## CANCER AND THE NEED FOR FACTS

In this age of enlightened scientific advancement it seems incredible that the known facts concerning cancer continue to be distorted in the minds of the public and the medical profession through the sale of useless or doubtful remedies for the treatment of this disease. Some such remedies are outright frauds, while others are in need of further investigation but, nevertheless, are offered for clinical application. Unfortunately, some of the more promising remedies occasionally are publicized prematurely and much confusion and some harm occur.

At the present time the established treatment for cancer consists of the judicious use of surgery and irradiation, either with gamma rays or roentgen rays. Many promising discoveries, such as the effect of substances with estrogenic activity on certain types of cancer, have been made which offer hope that some day drug therapy may become an important treatment measure, but until further research work has been completed, the use of drugs must, for all practical purposes, be regarded as still in the experimental stages. Furthermore, the injection of radioactive elements offers promise of an improved method for irradiation of certain forms of cancer, but it, too, requires extensive study before a therapeutic evaluation can be made finally. Thus a drug cure for cancer has not been found, and, until scientific research can provide a successful agent or method capable of preventing death from the disease, emphasis must continue to be placed on the early detection and complete eradication of the disease at its outset.

### I. FRAUDS AND FABLES

Of all the nostrums fraudulently promoted as remedies or "cures" none is more reprehensible than those falsely claimed to be effective for the treatment of cancer. The variety of preparations offered as remedies for cancer bears eloquent testimony of the failure of such products to provide a "cure," or even a sound method of treatment for the disease; nevertheless, the sale of quack remedies for cancer continues. Such nonsense is due in part, to the unscrupulous promoters who are persistent in their false appeals to the uninformed, and in part to those sufferers who are easily persuaded to forego scientific examination and treatment for more magical shortcuts. A less obvious but equally guilty minority, however, is constituted by a few presumably qualified physicians who lend unintentional support to worthless remedies by prescribing or administering such products with the wishful notion that they may provide some benefit in the treatment of what is known to be incurable cancer. The cancer charlatans thus prey not only on persons without cancer who fear it and on patients with the disease who have not sought competent medical advice, but also on the physician who is ever hopeful that a real cure for the disease has been found.

#### "COLLODAURUM"

Perhaps one of the most insidious of all the cancer nostrums is the so-called "palliative" promoted with insinuations that it is of some benefit and may possibly cure. "Collodaurum," a 0.02 per cent preparation of colloidal gold ("2/1000 grain in each ten minums"), promoted by the Kahlenberg Laboratories, Sarasota, Fla., belongs in this class of cancer nostrums. Advertising sent to physicians cleverly emphasizes the use of this product as a palliative in the treatment of inoperable and postoperative carcinoma in the manner for which roentgen or radium treatment is scientifically used to destroy or discourage the spread of certain malignant tumors. The unwary physician is further tempted by the statement, "A small number of so-called hopeless cases are cured and remain cured." This is, of course, pure balderdash. Ten years ago the Council exposed the character of the claims made for this product and concluded that it was useless in the treatment of cancer.[1] Although it was then pointed out that there is no scientific proof that gold is appreciably absorbed when given orally, the firm continues to advertise, "administration may be oral, intravenous or both." Then, as now, there existed no sound evidence to demonstrate that colloidal gold or, indeed, gold in any form by any route of administration is of any real benefit for the palliation or cure of cancer, and, since the Council's previous report, nothing has been brought forward to indicate that "collodaurum" is anything more than a placebo to which curative properties are falsely assigned on the basis of uncontrolled clinical impressions. As has been often emphasized, the fluctuation in the clinical condition of many patients with cancer accounts in large part for the benefits attributed to preparations such as "collodaurum."

That this product is not the specific remedy the promoter claims is evident from its history. The record shows that the product was also previously promoted for colloidal gold therapy of arthritis and tuberculosis, though Kahlenberg Laboratories now separately promotes a more concentrated (0.1 per cent) colloidal gold preparation for arthritis under the name "rexarum," with the claim that it is effective orally as well as by injection. This manipulation removes "collodaurum" only slightly from the category of the "cure-all" nostrums promoted for a wide variety of diseases. The firm's claim that "collodaurum" is unlike other gold preparations parallels its statement that the product is "absolutely free of soluble gold salts." This is evidently intended to create the erroneous impression that gold in colloidal form possesses mystic healing qualities and is superior to the soluble salts, such as gold and sodium thiosulfate, N.F. Indeed, the existing evidence for any beneficial effects of chrysotherapy is based on the use of soluble gold salts, the action of which is attributed to the absorption of the injected gold, whereas authorities on chrysotherapy have found that colloidal gold preparations are generally ineffective therapeutically because insoluble colloidal particles are quickly phagocytized and would thus be prevented from being readily absorbed. The Council has not accepted preparations of colloidal gold for any purpose.

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[1] Collodaurum Not Acceptable for New and Non-Official Remedies, report of the Council on Pharmacy and Chemistry, J. A. M. A. **111**: 531 (Aug. 6) 1938.

### "IRIODINE" AND "RADIODINE"

Promoters of other nostrums have also found it expedient to attribute magical properties falsely to the colloidal state of various substances. Prominent among these are the colloidal iodine preparations promoted through a concern lately known as the Iodine Research Institute of Chicago, by a Belgian chemist, Albert Trencavel. One of the products attributed to these promoters is advertised to physicians under the name "iriodine," and to the public as "blue magic iodine," and is claimed to be effective in a variety of conditions, including cancer, by a combination of oral and topical administration. This product is vaguely described as "free iodine in aqueous solution-dispersion suspended by a special process in a live or active colloidal medium to which it is 'harnessed,' insuring its stability." The promoters are also responsible for a product named "radiodine," at one time described as "colloidal iodine sine potassium iodide, for intravenous injection only," and at another time as, "a mild radio-active form of iodine in its pure form. . . ." Apparently the promoters have found it difficult to decide whether or not injected iodine should be in colloidal or radioactive form. Preparations containing iodine in colloidal form are not new, and over the years various pharmaceutical manufacturers have "introduced" such products with fanciful therapeutic claims for their superiority over iodine in noncolloidal form. Likewise other preparations claimed to be "radioactive" have long been credited with unusual healing powers, when as a matter of fact the amount of radioactivity was either imaginary or of the order of that from a radium-coated watch dial. Such obviously worthless remedies should not be confused with the truly radioactive elements, such as $I^{131}$, which is under current scientific investigation for the treatment of carcinoma of the thyroid and toxic goiter.

### CAUSTIC PASTES

A report on cancer frauds would not be complete without reference to the topically applied escharotic preparations promoted for the caustic removal of superficial tumors by what has been described as the method of "chemosurgery." The type of product usually employed is merely a caustic paste containing arsenic, zinc or other escharotics, or some combination of such substances, used either for complete removal or delineation of external cancer as a preparation for surgical removal. The promoters of "collodaurum" mentioned herein also market a preparation of bichloracetic acid which belongs in this class. THE JOURNAL has previously pointed to evidence showing that the promiscuous use of such preparations accomplishes nothing that cannot be equally well, or better, done by irradiation or surgical treatment.[2] THE JOURNAL'S brief review of the results of this type of treatment received by patients at Dr. Nichols' Sanatorium, Savannah, Mo., has served to emphasize the dangers involving the use of caustic pastes; the treatment produces unnecessary disfigurement in patients without true cancer, and the locally applied paste does not prevent the advance of extensive or deep-seated superficial tumors without surgical treatment or radiation therapy.

Apparently another outlet for this form of cancer "cure" is the Hoxsey Cancer Clinic, Dallas, Texas, which has been claimed to use an arsenical paste for treatment. The record of its promoter, Harry M. Hoxsey, has been reviewed by THE JOURNAL.[3] Recent information[4] indicates that the activities of this promoter extend into Mexico and that the treatment also includes the internal administration of a mixture of potassium iodide, cascara sagrada and some other "secret" ingredient.

The most serious aspect of the treatment for cancer with escharotic pastes and, indeed, all cancer nostrums, is that some patients with real cancer are deprived of scientific examination at a time when the spread of the disease and death might be prevented. Cancer that is evident on the body surface in its early stages usually arises from the skin, whereas most internal cancer rarely involves superficial structures such as the skin except as the result of widespread extenson of the disease from internal organs or glands. It is thus utterly foolish to expect a "cure" by the application of caustic pastes to the superficial manifestations of a tumor that may involve remote internal tissues. The nostrum vendors are, of course, more concerned with the fee for their dubious services or products than with accurate and complete diagnosis, since they lack either the scientific training or the inclination to help the unfortunate victims of their advertising. Many of the promoters have no qualifications or license to practice medicine, a situation that some of them have tried to meet by alining themselves with unethical licensed practitioners who are equally unfit or disinclined properly to diagnose and treat cancer.

The need of microscopic control for the proper use of caustic paste to fix tumor tissue preparatory to successful surgical removal of superficial cancer has been recently reported.[5] This approach differs, however, as it involves a scientific approach to the concurrent use of a caustic paste; it is not intended as a curative agent.

### "SYNTHETIC ANTITOXINS"

Another well known abuse in the annals of cancer quackery is the use of the so-called Koch cancer treatment, which is neither an effective treatment nor one restricted always to cancer. Since 1920, a William F. Koch, M.D., of Detroit has promoted a series of preparations under one or more names or in various forms, distributed by Koch Laboratories of the same city; he calls these preparations "Koch's synthetic antitoxins." The products have been foisted on the medical profession and the public in what the promoter apparently claims to be three different forms, represented by the following [illegible] "[illegible]lide," "1:4 benzoquinone" or [illegible]" or malonide ketone solution." The promoter has never satisfactorily explained the nature of these preparations, if, indeed, he himself has any knowledge of their composition, so that it is impossible to determine with certainty whether the variously identified products are actually different or are merely different names or different forms of the same nostrum. THE JOURNAL and the Bureau of Investigation of the American Medical Association have repeatedly condemned the promotion of these products.[6] The records of the Association indicate that within less than a year of his graduation from a Detroit medical college in 1918, the promoter announced that he "had developed a real specific cure for cancer," then described only as "Koch's synthetic anti-toxin" and claimed to be a differential poison that would destroy the "cancer germ" without injuring the host. Koch advanced the theory that cancer was caused by a microorganism resembling the spirochete of syphilis and exploited his nostrum as a cancer "cure" for several years before extending claims to other diseases. "Glyoxylide," appearing on the scene in 1936, was claimed to have "demonstrated its efficiency not only in the treatment of cancer, but also in such infections as tuberculosis, psoriasis, leprosy, poliomyelitis and syphilis," despite the fact that an investigation of the results of his "cure" for cancer indicated that it was of no value and that patients with the disease receiving the treatment had subsequently died. Koch vaguely represents "glyoxylide" to be a compound resembling an unsaturated diketone and claims that this and his other so-called synthetic antitoxins act as catalysts to encourage the destruction of toxins that are held to be responsible for the growth of cancer tissue. There is, of course, no scientific basis for this theory of cancer, but it illustrates the obvious fact that Dr. Koch has either changed his mind regarding his theory of the cause of cancer or purposely alters his pseudoscientific jargon from time to time to confound the unscientific practitioner and layman alike.

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[2] The Treatment of Tumors with Escharotics, editorial, J. A. M. A. **122**: 949 (July 31) 1943.

[3] Hoxsey-Cancer Charlatan, editorial, J. A. M. A. **133**: 774-775 (March 15) 1947.

[4] Hoxsey in Mexico, report of Bureau of Investigation, J. A. M. A. **137**: 1242 (July 31) 1948.

[5] Mohs, F. E.: Chemosurgical Treatment of Cancer of the Skin: A Microscopically Controlled Method of Excision, J. A. M. A. **138**: 564-569 (Oct. 23) 1948.

[6] The "Glyoxylide" of William F. Koch, report of Bureau of Investigation, J. A. M. A. **107**: 519 (Aug. 15) 1936. The "Essence" of Sulfonamide Quackery, editorial, J. A. M. A. **118**: 734-735 (Feb. 28) 1942.

[7] Omitted.

Koch continues to play on the credulity of the unwary physician and the human victims of cancer and other diseases with testimonials of false cures or benefits both in this country and in Canada, where representatives for his nostrums also operate. Since 1940 his quackery has also extended to the field of veterinary medicine, with claims for his nostrum in the treatment of mastitis and other diseases in cattle. It has been implied that the value of "glyoxylide" for such purpose has been confirmed by successful experiments conducted under the auspices of the provincial department of agriculture of British Columbia. An exposé of this additional falderal recently appeared in The Journal.[8] It should be obvious that Koch's treatment is worthless as a remedy for any disease. Koch's "treatment" is known to be prescribed chiefly by irregular practitioners who are not doctors of medicine and who extend his fraudulent operations by their dubious support.

### HETT "CANCER SERUM"

In a pamphlet bearing the title "The Hett Cancer Treatment and Research Foundation" and listing an address in Windsor, Ontario, Canada, a Dr. John Emil Hett, who has had other Canadian addresses, publicizes to physicians of this country the use of a serum alleged to cure cancer. The exponents of this "cure" also claim to detect accurately the presence and degree of internal cancer from a drop of the patient's blood that is merely allowed to dry on a glass slide which is furnished for forwarding the specimen by mail. It is modestly stated further, "The cure of cancer has been discovered (namely by Dr. Hett) as far back as 1931," and "Dr. Hett has not been able to bring his discoveries to the notice of the profession through the columns of a medical journal because editors decline to publish a paper on the subject unless details are given about the nature and method of preparation of his serum." The explanation is said to be made clear in his book, "Cancer, Its Causes, Prevention and New Treatment," which, apparently, will be sent anywhere for $3.50. Several flimsy excuses are offered in defense of the secrecy of the formula for the serum, not the least of which is the claim that a physician needs special training to administer the serum safely. As an example of the danger of administration by inexperienced hands, it is stated in the pamphlet, ". . . there were cases of fatalities from the use of ensol, where the agent had been prepared elsewhere than in the inventor's laboratories." The former history of "ensol," an extract of cancer tissue for injection, and its tetanus-contaminated companion, "rx," has been previously reported in The Journal.[9] The pamphlet offers as another excuse for secrecy by Dr. Hett the point that members of the Royal Commission appointed in 1937 by the Legislature of Ontario to investigate all remedies used in the treatment of cancer apart from surgery, roentgen rays and radium were sworn to secrecy as to the nature of the formulas submitted to that agency for examination. It is further indicated in the pamphlet that the Commission was at first "ultraconservative" toward Dr. Hett's treatment, but that it ultimately admitted the cures attributed to him. The complaint is offered that the findings of the Commission reported to the Legislature in 1945 were not made public until 1946, after considerable pressure on the part of Dr. Hett and his associate.

The secrecy surrounding the serum "cure" of Dr. Hett can only be condemned as outright chicanery. If, indeed, a cure for cancer had existed since 1931 as claimed by Dr. Hett, then the responsibility for all deaths from the disease since that time could be ascribed to his failure to make known his discovery to all other physicians. Obviously, the real reason for secrecy lies in the fact that Dr. Hett has no cure.

### "AF-2"

More recently, publicity concerning another alleged "serum" cure for cancer, known as formula "AF-2," has come from Italy by way of an American-Italian language newspaper containing an item regarding the Italian inventor of the preparation, a Prof. Francesco Guarnieri. The manufacture and distribution of the preparation are attributed to an Institute Guarnieri of Rome, Italy. One American newspaper makes reference to the product as a "serum" derived from the livers of "cancer-resisting" animals, such as goats, sheep and pigs, and indicates that although Guarnieri claims to have cured or arrested many cases (of cancer) by free distribution of the preparation, he is not in good repute with Italian doctors and specialists. Despite failure of the government medical commission of Italy to approve the sale of the formula in that country, the inventor has apparently condoned the martyrdom accorded him in the Italian press, publicizing the popular clamor that the product be given official recognition. Another source of information indicates that Professor Guarnieri is not a physician and that he has been unwilling to document his cases of claimed cures or to give details of the composition of his material. It is understood that tests of "AF-2" are being conducted in Italy and that the results so far are unfavorable. An American veterinary authority has offered the pointed comment that livestock ordinarily sold for slaughter, such as swine, rarely live long enough for any one to state with certainty that such animals are free of cancer. This would appear to shed considerable doubt on the theoretic basis for the animal origin of "AF-2." Furthermore, even if certain animals are "cancer-resisting," there is no scientific proof that an extract of their livers contains any substance capable of curing what is known as cancer in human beings.

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[8] Senator Langer Abuses Franking Privilege by Circulation of Propaganda for Koch's Cancer Quackery, Report of Bureau of Investigation, J. A. M. A. **137:** 1333 (Aug. 7) 1948.

[9] The Connell Cancer Cure, editorial, J. A. M. A. **105:** 1122 (Oct. 5) 1935; Special Article: Eleven Deaths From a Cancer Treatment, J. A. M. A. **110:** 1183-1185 (April 9) 1938; Ensol in the News, editorial, J. A. M. A. **116:** 2774 (June 21) 1941.

### DIETARY "TREATMENTS"

Although reference to the influence of the diet is frequently included by promoters of cancer nostrums as a part of some unproved theory of the disease, perhaps the most notorious adherents to the false notion that the diet has any specific influence on the origin or progress of cancer are the food faddists. One such faddist, Johanna Brandt, author of a book entitled "The Grape Cure," represented that the eating of grapes alone would cure cancer and practically all other human diseases. The book was last distributed by a Jessie F. Springer, operating as the Harmony Centre, Inc., of New York. The organization capitalized on the "grape cure" propaganda by advertising that it had grape juices and concentrates for sale. The distributor has been cited in a cease and desist order issued by the Federal Trade Commission that the misrepresentations contained in the book be discontinued.[10] The United States Post Office Department subsequently issued a Fraud Order (No. 36728, Feb. 27, 1948) against the distributor for use of the mails to advertise and circularize various "health books" advancing fraudulent claims for dietary cures of such conditions as high blood pressure, faulty eye sight and gray hair.

Another "treatment" for cancer involving dietary restrictions is that of a Dr. Max B. Gerson of New York City, who has been reported by THE JOURNAL[11] to be using a dietary and salt-controlled method that is said to be supported by a Robinson Foundation for cancer research located at 14 Wall Street, New York. THE JOURNAL pointed out that Gerson had been previously connected with a diet method falsely proposed as an advance in the treatment of tuberculosis and that the research "foundation" for cancer was actually financed by two business enterprises, the Hatfield Wire and Cable Company and Wellin Davit and Boat Company, both of Amboy, N. J., by incorporation under a provision of the revenue code for educational institutions to exempt the organization from federal taxes. The detailed "diet" proposed by Gerson consisted essentially in restriction of all foods other than uncanned fresh fruits and vegetables and oatmeal and forbade the use of aluminum utensils and pressure cookers in preparation of food and the use of such items as salt, spices, sodium bicarbonate, alcohol and tobacco. His "treatment" also included the internal administration of iodine, liver, iron and various vitamins (apparently to supplement a diet lacking in essential proteins and fat) and the use of an enema formula to produce copious daily bowel movements. The diet was said to make the body highly hypersensitive, so that ordinary anesthesia might be fatal, a conjecture that is wholly unfounded and apparently designed to appeal to the cancer victim already fearful of a surgical operation which might offer the only effective means for eradication of the disease. However, there is no scientific evidence whatsoever to indicate that modifications in the dietary intake of food or other nutritional essentials are of any specific value in the control of cancer.

An equally vague form of alleged cancer therapy that may be included in this category is that attributed to Emanuel Revici, said to be a refugee physician from Rumania. The history of the "treatment" promoted by this person begins in Mexico City, where patients from the United States were attracted by claims of a new method. An investigation by several American physicians previously reported in THE JOURNAL[12] indicated that the modern building used for hospitalization of patients was without adequate laboratory or other scientific facilities, that no satisfactory clinical record of patients was kept and that the so-called treatment, based on unproved theories, consisted of the parenteral and oral administration of various glandular and tissue brews digested in various ways. The investigators warned that little benefit could be expected by cancer patients going to Mexico City for this "treatment." Subsequently, Revici spent a few months at the University of Chicago, where he was given an opportunity to demonstrate his method, with the result that in 52 patients with cancer no favorable effects could be attributed to this form of therapy. Present records indicate that Revici has been in Brooklyn since 1946 at what is called the "Institute of Applied Biology"; his "treatment" consists essentially of the administration of fatty acids by mouth and by injection under the skin, to induce a gain in weight. While it is possible to credit fatty acids with the ability to produce a gain in weight in patients with cancer, as enforced food intake would do, there is no scientific evidence to indicate that this will alter the ultimate course of the disease.

### "ORGONE ACCUMULATOR"

Among the various weird devices at one time or another offered for the "treatment" of cancer and other diseases should be mentioned what has been described as the "orgone accumulator" and "orgonoscope" in a book entitled "The Discovery of the Orgone. Volume II: The Cancer Biopathy," by Wilhelm Reich, M.D., translated by Theodore P. Wolfe, M.D., published by the Orgone Institute Press of New York. The "orgone accumulator" is apparently a cabinet in which the patient sits and supposedly accumulates "orgone," a highly imaginary sexual factor supposedly found everywhere in life, but somehow not effective unless concentrated about the patient. The pseudo-freudian confusion on which this illusory concept of "treatment" for cancer is based can be best appreciated by the following comment concerning the book:

> The neatness of its format and the unctuous effect of its pseudo-scientific vocabulary are likely to mislead some of the readers of this book. It begins with a baffling description of units called "bions"; the noun gives rise to derivatives like the phrase "bion water" and the adjective "bionous." The earth bion water contains something called "orgone," which has to do with orgasms. "OP" in this vocabulary means not "osmotic pressure" but "organotic potency"; related terms are "orgone accumulator" (illustrated on page 100), "orgonoscope" (illustrated on page 89), "orgonomy," "orgonotically," "anorgonia," and even "orgprotozoa." The blueness of the sky is ascribed to orgone. Sooner or later the author sees blueness practically everywhere, even in red corpuscles.

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[10] Abstracts of Certain Federal Trade Commission Releases: Grape Cure For Cancer, report of Bureau of Investigation, J. A. M. A. **116**: 2525 (May 31) 1941.

[11] Gerson's Cancer Treatment, editorial, J. A. M. A. **132**: 645-646 (Nov. 16) 1946.

[12] Correspondence: A Mexican Treatment for Cancer—A Warning, J. A. M. A. **128**: 1186 (Aug. 18) 1945.

The thesis of the book is that cancer is somehow related to the behavior of orgone, and (page 350) that "a local cancer affection is a result of a disturbed sex-economy of the organism. Consequently, a radical fight against cancer requires a radical change in the sexual hygiene of the total population." To reach this conclusion, the author, without exciting any protest from the translator, weaves a web of argument in which the undeniable is most amazingly entangled with the unfounded and the absurd. As a defense of the author's use of the "orgone accumulator," this book fails of its purpose.

Inquiries received concerning the "institute" publishing this nonsense indicate that the "theory" is promoted as a method for curing cancer. There is, of course, no evidence to indicate that this is anything more than another fraud that has been foisted on the public and the medical profession.

### OTHER CLAIMED CURES

The files of the Bureau of Investigation and of the Therapeutic Trials Committee of the American Medical Association contain many letters from persons purporting to have a formula for a salve or other type of medication believed to be of benefit as a "remedy" for cancer. Many such persons are sincere but misguided in their efforts to bring such medicaments to the attention of the medical profession, basing their faith in a particular formula handed down within the family or on the testimony of life-long friends who were thought to be benefited, when actually cancer had not been proved to be the cause of their ailment. The lack of scientific knowledge makes it difficult for these persons to disbelieve the apparent "cures" brought to their attention by other equally uninformed persons. Others are similarly deluded by unscientific evidence of "cures," but for selfish reasons do not want to reveal the nature of their claimed remedy, even though they profess to be motivated by altruistic desires. These persons, of course, differ from the charlatan only by their lack of knowledge or ability to set up a scheme of promotion on a commercial scale and are thus more to be pitied than condemned. Most of what may be called these "home remedies" for cancer are extracts of plants, herbs or other galenicals to which little if any therapeutic action can be assigned.

In answer to the many letters from persons sincere in the belief that they have a curative remedy for cancer who propose that it be investigated by the American Medical Association, the Bureau of Investigation has replied that before such remedies could be properly evaluated the following information must be furnished: (1) full information regarding the composition; if it is composed of more than one substance, the full name and amount of each substance; (2) the names and addresses of at least twenty-five persons who are alleged to have been cured by the use of the treatment, and (3) the names and addresses of physicians who had the opportunity of diagnosing the condition in these twenty-five persons before they were treated.

In every instance the request for such information has not been met.

## II. UNESTABLISHED REMEDIES

Finally, it should be added that there are under investigation various methods of treatment proposed for cancer that cannot be classified as frauds, but which are based on unestablished theories of questionable promise. Such remedies sometimes receive so much early and enthusiastic publicity in the press that the relatives of cancer victims and the victims themselves are falsely encouraged to believe that a complete cure for the disease is at last available. Sometimes such publicity occurs through no fault of the investigators and is not necessarily an indication that commercial promotion is contemplated or that the effort to find a treatment of real value is not sincere. Often, also, the considerable time required for scientific evaluation of what is reported to be a promising agent makes it impossible to estimate the status of the proposed treatment until other scientists have repeated experiments and confirmed the report. Because so many promised "cures" have failed to be of any real value for the treatment of cancer and of other serious diseases, it is only natural for the honest investigator to have a healthy skepticism toward new claims for such a treatment.

### "KR SERUM"

"KR serum" (so designated with the initials of the surnames of the two original Russian investigators, N. G. Klyueva and G. I. Roskin), which is made from the serum of mice or from cultures infected with certain strains of a protozoan, Trypanosoma cruzi, the cause of a serious tropical illness called Chagas' disease, has been claimed by Russian investigators to contain an "endotoxin" which when injected subcutaneously into mice with certain forms of cancer will cause reduction of the tumors in those animals. THE JOURNAL[13] has called attention to the lack of adequate information by which to judge the effectiveness of "KR serum" and has reviewed[14] a subsequent report issued by two Philadelphia investigators seeking to confirm the results of the Russian observers. THE JOURNAL points out that the observations of the American researchers did not confirm the Russian claims and states, "From these negative results the Philadelphia investigators conclude that the alleged 'endotoxin' of T. cruzi does not at present hold out much promise in practical clinical therapy."

### "AUTOVACCINATION"

THE JOURNAL[13] also called attention to the need for authoritative scientific information regarding the use of a method of autoinocculation of human cancer reported by another Russian observer, Krasheninnikov, based on previous observations by Besredka that a certain degree of immunity sometimes developed to intradermal transplants of certain cancerous tumors in animals. Although it was reported that this method as used by the Russian observer had resolved the tumors in 2 patients with stomach cancer treated with transplants of the patient's own tumor into the skin of the abdomen, an American physician has indicated that such results are open to question.[15] The latter pointed out that his own previous observations made with Besredka on the use of the method in human beings gave unfavorable results and that the transplants led only to the establishment of another tumor and thus spread the disease.

Other observers[16] have previously reported regression of human skin cancer in a small preliminary series of patients following intradermal injections of tissue extracts from human spleen or liver, but have withheld judgment as to the curative value of this form of treatment until patients have been observed for at least five years.

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[13] Current Comment: Cancer Treatments from Russia, J. A. M. A. **133**: 111 (Jan. 11) 1947.

[14] Current Comment: Ineffectiveness of Trypanosoma Cruzi Endotoxin (KR) in the Treatment of Mouse Cancers, J. A. M. A. **137**: 1321 (Aug. 7) 1948; Alleged Cancer Biotherapy, editorial, J. A. M. A. **137**: 1604 (Aug. 28) 1948.

[15] Correspondence: Cancer Treatment by Autovaccination, J. A. M. A. **133**: 800 (March 15) 1947.

[16] Amersbach, J. C.; Walter, E. M., and Sperti, G. S.: Treatment of Basal Cell Epithelioma by Injection of Tissue Extracts: A Preliminary Report, Arch. Dermat. & Syph. **54**: 119-132 (Aug.) 1946.

### CHYMOTRYPSIN

Another unestablished theory based on the thesis that all cancer is of a trophoblastic nature, such as chorionepithelioma, has been advanced by Krebs and his co-workers.[17] This group has also reported encouraging results from the use of injections of crystalline chymotrypsin, an enzyme of the pancreas, in the treatment of a patient with advanced cancer,[18] although there is lacking adequate proof to connect the theory with the use of the enzyme as a form of treatment for the disease. On the basis of the same theory, another group, Beard and his co-workers,[19] have proposed a test for cancer involving bioassay of chorionic gonadotropin in the urine. This test as an accurate method for the detection of cancer is open to serious question; yet it has been widely publicized in an article appearing in the *Readers' Digest* for August 1947. It has also received other publicity, as the accompanying reproduction of one statement:

CANCER
Is CANCER in any part of your body?
BREAST,LUNG,STOMACH,KIDNEY,LIVER,CHEST,
NECK,THROAT,HEAD,LIMBS, or
INTERNAL ORGANS?
A Labatory URINE-TEST will show.
Labatory Analysis is done by the following Doctors
Howard H. Beard, Ph.D.
Albert B. Katz, Ph.D.
C. M. Wylie, Ph.D.
This new method is less painfull than a Surgeons Knife.
CANCER in the early stage can be cured
with CHYMOTRYPSIN
and shall be administrated by your PHYSICIAN.
Urine-test are by appointment only.
Hours 2-3 p. m. Exept Saturday and Sunday.
CANCER — — DIVISION.
OF
MASSACHUSETTS SPEECH CLINIC
16 CENTRAL AVENUE
SUITE 419
LYNN, MASS.

Information received by way of inquiries further indicates that the speech clinic publicizes the test on a commercial basis for a fee of $200 per person. The proponents of the Krebs theory, however, have denied all responsibility for this publicity and renounce the claim that chymotrypsin is a cure, claiming only that chymotrypsin is a "palliative in human cancer." As yet, evidence definitely to establish its value either as a palliative or cure has not been presented. Both the proposed urine test and the method of treatment must for the present be considered highly experimental, and, until proved to be of some definite value in cancer, the publicity given to either procedure is, to say the least, unfortunate.

The foregoing examples of unestablished remedies for cancer serve to emphasize the false hope that is frequently stimulated by too early and too enthusiastic efforts to publicize the "news" of unproved methods of treatment. The cry of "wolf" once too often could easily create indifference to an announcement of a truly effective remedy for advanced cancer when such a goal is ultimately realized.

### CONCLUSION

The Council emphasizes the need for caution in the premature adoption of new theories or use of unproved treatments proposed for cancer and issues this report in condemnation of the numerous fraudulent remedies for the disease and the early publicity of unestablished remedies. When truly improved methods for the treatment of cancer are found, it seems self evident that these will quickly find wide application to all victims of cancer without the advertising used to promote the sale of cancer nostrums.

# Council on Physical Medicine

## REPORTS OF THE COUNCIL

*The Council on Physical Medicine has authorized publication of the following reports.* HOWARD A. CARTER, *Secretary.*

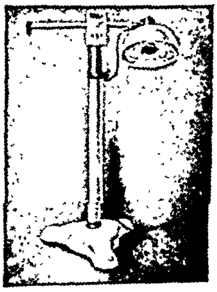
### LIFE LITE THERAPEUTIC LAMP, MODEL H-11, ACCEPTABLE

Manufacturer: Ultra Violet Products, Inc., 5205 Santa Monica Boulevard, Los Angeles 27.

The Life Lite Therapeutic Lamp, Model H-11, is a dual purpose lamp ("two in one") consisting of (1) a source of ultraviolet radiation in the form of a high potential, low pressure "cold quartz" mercury arc lamp and (2) a source of infra-red radiation principally of wavelengths 15,000 to 150,000 angstroms.

These two therapeutic elements are fixed in a hemispherical reflector that is supported on the end of an arm and is free to travel horizontally, rotating about the axis of the arm. This arm is mounted on a substantial base having a vertical telescoping tube that permits adjustment in height ranging from approximately 80 to 150 cm. (32 to 59 inches), measured from the floor to the rim of the reflector, when it is directed downward.

The weight of the lamp is given as 20 Kg. (43 pounds). The packed weight for domestic shipment is 34 Kg. (75 pounds) and for foreign shipment 43 Kg. (95 pounds). It is designed to operate on 120 volt alternating current. When both the ultraviolet and the infra-red elements are in use, the power drawn amounts to approximately 370 watts.



Life Lite Therapeutic Lamp, Model H-11

The Council considered results of mechanical, electrical, radiometric and physiologic tests on this lamp and concluded that mechanically and electrically the device is stable and well constructed, and that there is no danger of electrical shock or thermal burns so long as the parts are unbroken or the unit is not taken apart.

The Council considered further extensive data on: (1) the ultraviolet emitted by this lamp, with power input ranging from 19 to 31 watts (105 to 130 volts); (2) the variation of ultraviolet intensity with distance from the burner, and (3) the variation in intensity along a line perpendicular to the axis of the central beam. The radiometric measurements indicated that approximately 90 per cent of the biologically effective ultraviolet radiation of wavelengths 3,132 angstrom units and shorter emitted by this lamp is in the wave band at 2,537 and that, at the Council's specified distance of 61 cm. (24 inches) from the plane of the rim of the reflector, with the lamp operating on 120 volts (25 watts), the intensity is close to 150 microwatts per square centimeter. This is about four times the minimum intensity stipulated in the Council's minimum requirements for acceptance. Since this can be calculated to produce a minimal perceptible erythema on the untanned skin of average pigmentation in about four minutes, it is in satisfactory agreement with the physiologic findings in the report.

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[17] Correspondence: Pathology of the Trophoblast, J. A. M. A. **131**: 1527 (Aug. 31) 1946. Gurchot, C.; Krebs, E. T., Jr., and Krebs, E. T.: Growth of Human Trophoblast In Eye of Rabbit: Its Relationship to the Origin of Cancer, Surg., Gynec. & Obst. **84**: 301-311 (March) 1947.

[18] Krebs, E. T.; Krebs, E. T., Jr., and Gurchot, C.: Skeletal Changes Associated with the Use of Crystalline Chymotrypsin in an Apparently Radio-Resistant Growth, M. Rec. **160**: 479 (Aug.) 1947.

[19] Beard, H. H.; Halperin, B., and Libert, S. A.: Effect of Intraperitoneal Injection of Malignant Urine Extracts in Normal and Hypophysectomized Rats, Science **105**: 475-477 (May 22) 1947.

The 350 watt infra-red element, consisting of a flat disk about 9 cm. (3.6 inches) in diameter and located at the center of the ultraviolet generator, delivered tolerance heat at 12 inches. The infrared heater complies with the Council's requirements.

The Council on Physical Medicine voted to include the Life Lite Therapeutic Lamp, Model H-11, in its list of accepted devices.

## WESTERN ELECTRIC 4CA AUDIOMETER ACCEPTABLE

Manufacturer: Western Electric Company, 120 Broadway, New York 5.

The Western Electric 4CA Audiometer is of the phonograph type and is designed to test auditory acuity for numbers by the use of calibrated records available through Western Electric dealers. The instrument incorporates a one stage vacuum tube amplifier which is capable of activating as many as forty telephone receivers. Thus the instrument is of the type adaptable to group screening for the purpose of isolating persons with losses of hearing. It has the following accessories:

4CA receiver tray with 10 receivers
4CA receiver tray case for holding 3 trays of receivers
KS-10087 test record for 2 digit numbers
KS-10075 calibration record
Bagshaw's Brilliantone needles
KS-677650-1 hearing test sheets
KS-677651-1 master sheets for checking

The instrument weighs 10.4 Kg. (23 pounds); its shipping weight is 13.2 Kg. (29 pounds). The dimensions of the case are 22 by 37 by 66 mm. (8½ by 14½ by 26 inches).

The 4CA Audiometer uses one, two, three or four trays of ten magnetic receivers with head bands and receivers. One tray is carried in the audiometer case. Additional trays are carried in a matching receiver tray case.

When in its carrying case the instrument is easily transportable and possesses a desirable degree of ruggedness. The phonograph motor is spring driven to make it independent of local power supply or availability of convenient electrical outlets. There is electronic amplification, and a meter built right into the instrument which serves the double purpose of allowing battery voltages to be measured and of allowing the amplifier output to be set at the level requisite for standardized testing. Dry cells of substantial size which will last a normal school year furnish the A and B supply for the amplifier. In order to replace them it is necessary to unscrew the turntable mounting panel. Stopping the turntable automatically turns off the amplifier; this feature minimizes the danger of exhausting the batteries when tests are not actually being given.

The receiver trays are connected in series and the output of individual receiver is the same, regardless of the number of trays used.

Each subject wears a single headphone. The receiver unit is easily removable from its plastic shell in the event of need of replacement.

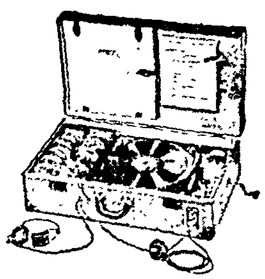
An instruction sheet is mounted in plastic in the top of the audiometer case. A circuit diagram is included under the baseplate for the phonograph.

Two records are supplied with the instrument. The first record is used to calibrate the instrument and to check the condition of the individual receivers. It presents a continuous warbling note.

The second record is designed especially for use with Western Electric 4 type audiometers. It presents numbers at descending intensity levels (with two digits to a level and 3 decibels as the gap between levels). The record covers the range of hearing (in sensation units as compared with normal threshold for numbers) from plus 30 to minus 3 decibels when played on a properly calibrated instrument.

The 4CA was designed to permit school systems now using the 4A and 4C Audiometers, in need of additional equipment, to purchase a 4CA Audiometer with assurance that the test procedure with the children and the scoring of the papers are also identical.

The specimen submitted for examination was given a field trial to determine three things: namely, (1) the ease with which the instrument could be operated by an experienced tester; (2) the credibility of the test results yielded by the instrument, and (3) the stability of the instrument's calibration adjustment over periods of ordinary use. In all three respects the apparatus was found suitable for group testing.

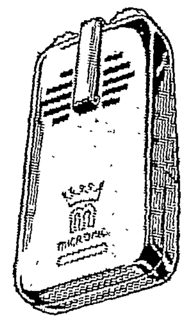

Western Electric 4CA Audiometer.

The Council on Physical Medicine voted to include the Western Electric Audiometer, Model 4CA, in its list of accepted devices.

## MICRONIC MODEL 101 (MAGNETIC RECEIVER) HEARING AID ACCEPTABLE

Manufacturer: Micronic Company, 727 Atlantic Avenue, Boston 11.

The Micronic Model 101 Hearing Aid is the counterpart to a model previously accepted by the Council. The previous model had a crystal receiver; the present model has a magnetic receiver. While no changes have been made in the wiring of the circuit, minor changes have been made in the chassis. The silver-colored metal case contains microphone, amplifier and batteries. The outside dimensions are 105 by 57 by 27 mm. (4⅛ by 2¼ by 1 1/16 inches) exclusive of the clip in front of the microphone. The entire instrument, with batteries, weighs about 185 Gm. (6½ ounces). The A-battery is of the zinc-carbon type; the B-battery, likewise of the zinc-carbon type, gives 22.5 volts. The batteries are easily replaced. The instrument appears to be sturdily constructed; the following are results of a performance test:


Micronic Hearing Aid Model 101 (Magnetic Receiver).

| | | Articulation Scores | | |
|---|---|---|---|---|
| Subject | Acoustic Gain | Micronic | Reference | Difference |
| A | 49 db. | 85% | 80% | + 5% |
| B | | 78% | 77% | + 1% |
| C | 42 db. | | | |
| D | | | | |
| Average | 46 db. | | | + 3% |

The acoustic gain is thus well above the minimum of 30 decibels required by the Council's specifications; the tabulated data show that the articulation of the instrument is slightly better than that of the reference instrument used.

The Council on Physical Medicine voted to include the Micronic Model 101 (Magnetic Receiver) Hearing Aid in its list of accepted devices.

THE JOURNAL OF THE
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SATURDAY, JANUARY 8, 1949

## THE DIAGNOSIS OF INFLUENZA

The Commission on Acute Respiratory Diseases[1] has completed studies carried on at Fort Bragg and Camp Mackall of the 1943 epidemic of influenza A. The results of this investigation have been published in a series of eight papers in the November 1948 *American Journal of Hygiene.* The Commission reviews the clinical features as well as the less well known methods of laboratory diagnosis of influenza. The "typical" clinical features are usually considered to be sudden onset of fever, muscular aching, prostration and various signs of inflammation of the respiratory tract. High morbidity rates, wide geographic extent and a sharp increase in pneumonia mortality characterize epidemics, many of which during the past century have been recognized on the basis of these criteria. Nevertheless, it is often difficult to differentiate the clinical and epidemiologic characteristics of influenza from various other forms of respiratory disease.

Since the causative agents of influenza were discovered and laboratory methods of diagnosis have been developed, it has been shown that the influenza viruses may produce not only "clinical" cases but numerous mild atypical illnesses and obscure infections. The proportions of clinical cases which have been confirmed by serologic methods have varied so widely that doubt has been cast on the specificity of influenza epidemics.

Stuart-Harris, Andrewes and Smith[2] studied outbreaks of respiratory disease at military depots in Great Britain and reported differences between the clinical patterns of cases occurring during epidemics of influenza and cases studied during epidemics of noninfluenzal "febrile catarrh." Francis[3] in the United States reported similar observations during the 1936-1937 epidemic of influenza A. In subsequent studies, a definite distinction was not always possible. Thus, some investigators have come to question the existence of a characteristic clinical pattern in influenza A.

A major objective of the present study of the Commission on Acute Respiratory Diseases was to reassess the reliability of clinical, epidemiologic and laboratory methods for diagnosing influenza. During the studies at Fort Bragg, clinical observations were made in a group of 2,000 recruits among whom an epidemic of influenza A was followed by an epidemic of undifferentiated acute respiratory disease. Identical methods of examining patients and recording clinical data were employed in both outbreaks. When the two types of cases were compared in the aggregate, definite clinical differences were observed. Sudden onset, high grade fever, severe constitutional symptoms and involvement of the nasal mucosa were associated more frequently with influenza A than with undifferentiated acute respiratory disease. Other evidence of inflammation of the respiratory tract, particularly sore throat, was observed more often in acute respiratory disease. When the illnesses were diagnosed as influenza A or acute respiratory disease by serologic methods, the differences observed supported the concept of influenza as a separate clinical syndrome. When an attempt was made to differentiate the two diseases in the individual patient by clinical methods alone, however, the accuracy of clinical diagnosis was hardly better than could have been achieved by chance. The "classical" symptom complex was observed in only half of the patients with serologic evidence of influenza A, while numerous patients with acute respiratory disease showed the same clinical picture.

An outstanding feature of the 1943 epidemic in the Army was the simultaneous occurrence of the disease among both seasoned men and recruits. It was the only widespread epidemic of acute respiratory disease observed among seasoned men at Fort Bragg during the period 1942 to 1945. Among recruits, however, laboratory procedures were usually necessary to determine the cause of an epidemic. The occurrence of an epidemic of acute febrile respiratory disease among organizations composed of seasoned men is strong presumptive evidence of the presence of influenza. An epidemic which is confined to recruits, however, is more likely to be undifferentiated acute respiratory disease.

Confirmation of the clinical diagnosis of influenza may be obtained by the demonstration of a rise in the antibody titer of serum collected during convalescence as compared with serum obtained early in the

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[1] The members and professional associates of the Commission were: John H. Dingle, Director; Theodore J. Abernethy; George F. Badger; Joseph W. Beard; Norman L. Cressy; A. E. Feller; Irving Gordon; Alexander D. Langmuir; Charles H. Rammelkamp, Jr.; Elias Strauss, and Hugh Tatlock.

[2] Stuart-Harris, C. H.; Andrewes, C. H., and Smith, W., with Chalmers, D. K. M.; Cowen, E. G. H., and Hughes, D. L.: A Study of Epidemic Influenza: with Special Reference to the 1936-37 Epidemic, Medical Research Council, Special Report Series, no. 228, London. His Majesty's Stationery Office, 1938.

[3] Francis, T., Jr.: Epidemic Influenza; Studies in Clinical Epidemiology, Ann. Int. Med. **13**: 915-922, 1939.

A-CC-No·64

illness and by isolation of virus from nasal or pharyngeal washings. A comparative study of four serologic methods for determination of antibodies indicated that the agglutination-inhibition test gave results which were comparable to those obtained with complement fixation and mouse neutralization. In contrast, egg neutralization was the least sensitive test and the most difficult one to perform. The agglutination-inhibition test is based on the fact that influenza viruses agglutinate chicken red blood corpuscles and that this capacity is specifically inhibited by immune serum.[4]

Less than a fourfold antibody response formerly was considered within the limits of experimental error in serologic tests for influenza A. During these studies of the 1943 epidemic, however, the frequent occurrence of twofold increases in titer in the agglutination-inhibition test was considered indicative of influenzal infection.

The specificity of the agglutination-inhibition test appears to vary with the particular strain of virus which is used as antigen. In this epidemic, slight differences were observed between tests performed with the PR8 virus and a locally isolated CRA strain. Epidemiologic evidence indicated that the routine use of the PR8 virus adequately measured the occurrence of influenza. Diagnostic increases in antibody were observed in 90 per cent of the cases among seasoned troops and in 80 per cent of the epidemic cases which occurred in late November and early December among recruits.

The studies at Fort Bragg indicated that the agglutination-inhibition test was a specific and satisfactory procedure for the diagnosis of influenza A in the 1943 epidemic. The agglutination-inhibition technic provided a method for the laboratory diagnosis of influenza that was sufficiently accurate to permit a reliable description of the clinical and epidemiologic behavior of the disease during this epidemic. This finding generally accords with the experience of others.

A comparison of methods for isolating the influenza virus was carried out by the use of embryonated hens' eggs, ferrets and hamsters. Conflicting evidence was secured with regard to the persistence of virus in patients, depending on the method of detection. By inoculation of embryonated hens' eggs, virus was found most frequently during the first three days of illness and occasionally until the sixth day. By the use of ferrets and hamsters, essentially similar results were observed during the first six days of illness but, in addition, evidence of virus was also found in throat washings collected on the seventh, ninth, fifteenth and thirty-fifth days. However, the question of the existence of convalescent carriers of influenza must await further confirmation.

## STREPTOMYCIN-RESISTANT TUBERCULOSIS

One of the handicaps in streptomycin treatment of tuberculosis arises from the apparent rapidity with which tubercle bacilli acquire resistance to this drug. Patients under treatment with streptomycin may at times discharge tubercle bacilli several thousand fold more resistant to streptomycin than the usual strains. This acquired streptomycin tolerance has been studied in detail by Pyle[1] of the Mayo Clinic.

Pyle found that cultures of tubercle bacilli isolated from patients prior to streptomycin therapy are composed of bacterial cells which differ greatly in their streptomycin tolerance. From this he proposes the theory that the more susceptible organisms in a tuberculous lesion are retarded in their growth, thus allowing overgrowth by the more resistant variants. As soon as a predominantly resistant population is established the tuberculous process would become refractory to therapy with streptomycin.

This selective adaptation has been subjected to detailed clinical study by Youmans and Williston[2] of Northwestern University. They prepared Harrold's glycerin egg agar slants containing serial dilutions of streptomycin (1,000 to 0.095 microgram per cubic centimeter). Freshly isolated cultures from tuberculous patients were finely emulsified and heavily inoculated on each of the serial dilutions. The slants were then incubated and examined at weekly intervals for six weeks.

At the end of two weeks all cultures showed a profuse growth on the control or streptomycin-free slant. There was also growth on some of the slants containing the lower concentrations of streptomycin. As the time of incubation lengthened, growth would usually appear on tubes containing the next one or two higher concentrations. These later growths usually consisted of a few scattered colonies. Examination after four weeks' incubation often revealed single isolated colonies on still higher concentrations. These results confirmed Pyle's report that cultures of tubercle bacilli are not composed of cells with a uniform sensitivity to streptomycin.

Of the 57 recently isolated cultures used in their study 25 or 43.5 per cent yielded streptomycin-resistant variants. Twelve of these were resistant to concentrations as high as 100 micrograms per cubic centimeter and 5 to as high a concentration as 500 to 1,000 micrograms per cubic centimeter. Of the 14 cultures isolated from patients before streptomycin therapy was initiated, 9 or 64.3 per cent yielded refractory bacilli. Of the 43 cultures obtained from patients following the institution of streptomycin therapy, streptomycin-resistant variants were isolated from only 37.1 per cent. This lower percentage is seemingly at variance with expectations for Pyle's theory of selective dominance.

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[4] Hirst, G. K.; Rickard, E. R.; Whitman, Loring, and Horsfall, F. L., Jr.: Antibody Response of Human Beings Following Vaccination with Influenza Viruses, J. Exper. Med. [illegible] (May) 1942.

[1] Pyle, M. M.: Proc. Staff Meet., Mayo Clin. **22**: 465 (Oct. 15) 1947.

[2] Youmans, G. P., and Williston, E. H.: Proc. Soc. Exper. Biol. & Med., **68**: 458 (July-August) 1948.

This research is being continued in the hope of determining whether or not in patients who show streptomycin-resistant variants prior to the administration of streptomycin streptomycin-refractory tuberculosis is likely to develop. Whether or not acquired resistance to streptomycin is accompanied by an increase or a decrease in virulence will also be determined. A decreased virulence might be predicted from current bacteriologic theory.

## Current Comment

### THE VALUE OF A DOCTOR

In a recent schedule of United States Civil Service examinations announcement is made of an examination for a medical officer at a salary of $4,479 to $6,235 per year. In the same announcement there is offered for an agricultural research scientist up to $8,509, for a geographer up to $10,305, chemist $7,432 and astronomers, clinical psychologists and geologists the same. An oceanographer can get up to $10,305. Oh! for a life on the ocean wave!

### TOOTHBRUSHES

Americans use more toothbrushes than most of the rest of the world, but even in the United States a survey made some years ago showed that less than one half the people have a toothbrush which they use regularly. There is evidence that very few persons have two toothbrushes which they alternate at various times during the day. While the scientific evidence in support of brushing the teeth as a means of preventing caries or other disturbances is not too profuse or too well established, the use of the brush has met with almost universal approval by hygienists, dentists and physicians. Recently a survey[1] was made of the average use of toothbrushes in the American home. New toothbrushes were offered to a selected sampling of American families who had sent in their toothbrushes then in use. Over 8,000 toothbrushes were received, and more than 6,500 were found to be inadequate and unsatisfactory for a variety of reasons. These included bent or broken bristles, matted bristles or unsatisfactory condition. Almost 2,000 families participated. The average was 4.2 brushes per family. Since there were slightly less than 4 persons per family, it could be assumed that each member of the family had a toothbrush, but examination of the toothbrushes indicated that many of them were being used for other purposes than for brushing the teeth. More than 80 per cent of the brushes were found to be in need of replacement because they could no longer be effective implements in hygiene of the mouth or because their condition was such that they might injure dental tissue. Almost 2,000 toothbrushes were found to be unsatisfactory because of caked dentifrices and food debris at the base of the bristles. Apparently there ought to be some sort of routine inspection and rehabilitation of toothbrushes like that given to motor cars, oil heaters and other domestic devices. The care of a brush of any kind should include thorough cleansing and drying after use and especially when debris accumulates.

### WORKMEN'S COMPENSATION

For some time, one of the functions of the Council on Industrial Health has been the study of the complicated ramifications of medical relations in workmen's compensation. During the past few years, it has been evident that such problems needed the consideration of those whose experience might be of additional help to the Council's Committee on Workmen's Compensation. Accordingly, Dr. C. O. Sappington, Chicago, has been appointed as executive director of this Committee. Consultants are also being appointed representing the administrative, legal, insurance and technical aspects of workmen's compensation. The directors of the Bureau of Legal Medicine and Legislation and the Bureau of Medical Economic Research have been invited to serve as members of this consulting group. Projected activities will include field visits to industrial commissions and insurance organizations, attendance at appropriate meetings, preparation of educational material for publication and distribution, consultation services to state and other medical groups, collection of data for special presentation to the profession and the necessary steps to improve treatment of compensable disability, evaluation of disability and medical testimony. The work of the committee is necessarily long range. A few projects may be developed rapidly; others will take time. Medical activity in workmen's compensation can be improved in many ways, and this new approach should produce definite and measurable results.

### TASTE BLINDNESS AND DIABETES IN IDENTICAL TWINS

Segall[1] describes the identical genetic constitution of a set of identical twin girls of Jewish parentage. The children both became diabetic between the ages of 3 and 4, had similar bizarre neurologic lesions, mental deficiency and pes cavus. Additionally, both children were taste blind for phenylthiocarbamide (PTC). Neurologic lesions described in the twins emphasized a pattern which existed in the mother at the time of birth. Nondiabetic brothers of the twins were tasters for PTC. Study of the twins emphasized a previously suggested relationship between PTC taste blindness and diabetes. Both these conditions have been assumed to be inherited as recessive mendelian characters. Terry and Segall,[2] in previous study of 680 diabetic and nondiabetic persons, demonstrated a 15.3 per cent greater taste blindness among the diabetic group, indicating an apparently significant statistical difference. A true association was believed to exist even though testing for taste blindness lacks much procedural exactness.

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[1] Gruebbel, A. O., and Wisan, J. M.: A Study of Toothbrushes in Use in American Homes, J. Am. Dent. A. **37**: 346-349 (Sept.) 1948.

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[1] Segall, G.: Taste-Blind Identical Twins With Diabetes and Other Striking Pathological Characteristics, J. Hered. **39**: 228-232 (Aug.) 1948.

[2] Terry, M. C., and Segall, Gabriel: The Association of Diabetes and Taste-Blindness, J. Hered. **38**: 135-137 (May) 1947.

# ORGANIZATION SECTION

## Official Notes

### APPLICATIONS FOR SPACE IN SCIENTIFIC EXHIBIT AT ATLANTIC CITY TO CLOSE JANUARY 15

The program for the Scientific Exhibit at the Atlantic City Session is progressing rapidly. The commemoration of the Fiftieth Anniversary of the Scientific Exhibit will be marked by a group of special exhibits, including pathologic specimens similar to those shown in 1899, as well as other material of a historical nature. The Special Exhibit on Fractures will be a summation of more than twenty years' activity in the presentation of this feature. Each of eighteen Sections of the Scientific Assembly will have groups of exhibits dealing with the various specialties and much excellent material is in prospect.

Several other proposed features include clinical demonstrations with patients. Motion pictures will be shown in two large rooms adjacent to the exhibits.

Applications for space in the Scientific Exhibit, as well as applications for time on the motion picture program, will close on January 15. Applications should be sent to the Section Representatives or to the Director, Scientific Exhibit, American Medical Association, 535 N. Dearborn St., Chicago 10, Ill.

### PROGRAM OF ANNUAL CONGRESS ON MEDICAL EDUCATION AND LICENSURE

**To be held in the Red Lacquer Room, Palmer House, Chicago, February 6, 7 and 8, 1949**

#### *ADVISORY BOARD FOR MEDICAL SPECIALTIES*

SUNDAY MORNING, FEBRUARY 6, 9:00 A. M.—12:30 P. M.

Round Table Discussion: *The Effects of the Specialty Boards on American Medicine.*

Participants to be announced. They will include representatives of medical schools, hospitals, the general public, the armed services, the general practitioner, the specialty boards and the Council on Medical Education and Hospitals of the American Medical Association. The formal program will be followed by a period devoted to questions and general discussion from the floor.

Room To Be Announced

#### COUNCIL ON MEDICAL EDUCATION AND HOSPITALS, AMERICAN MEDICAL ASSOCIATION

MONDAY MORNING, FEBRUARY 7, 9:30 A. M.

H. G. WEISKOTTEN, M.D., *Presiding*

*Address of the Chairman*
H. G. WEISKOTTEN, M.D., Chairman, Council on Medical Education and Hospitals, American Medical Association

*Economics of the Hospital System*
ELI GINSBERG, PH.D., Professor of Economics, Columbia University and Director of the New York State Hospital Study

*Utilization of Regional Hospitals for Medical Education*
CHARLES F. WILKINSON JR., M.D., Director, Division of Medicine, W. K. Kellogg Foundation and Assistant Professor of Internal Medicine, University of Michigan Medical School

*The World Medical Association and Medical Education*
LOUIS H. BAUER, M.D., Secretary General, World Medical Association

*Classification Policies of Selective Service System*
COL. RICHARD H. EANES, M.C., Chief Medical Officer, Selective Service System

MONDAY AFTERNOON, FEBRUARY 7, 2:00 P. M.

H. G. WEISKOTTEN, M.D., *Presiding*

*The Relationship of the United States Public Health Service to Medical Education*
LEONARD A. SCHEELE, M.D., Surgeon General, United States Public Health Service

*A Preliminary Consideration of the Program of the U. S. Public Health Service for the Improvement of Teaching in "Cancer"*
SAMUEL C. HARVEY, M.D., Professor of Oncology, Yale University School of Medicine

*Pediatrics in the Medical Curriculum*
JOHN MCK. MITCHELL, M.D., Dean, University of Pennsylvania School of Medicine

*Psychiatry in Medical Education*
WILLIAM MALAMUD, M.D., Professor of Psychiatry, Boston University School of Medicine

#### THE FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES

MONDAY EVENING, FEBRUARY 7, 7:00 P. M.

*FEDERATION DINNER*

*Observations of Medical Conditions in Europe*
ROSS L. SENSENICH, M.D., President, American Medical Association
Crystal Room

TUESDAY MORNING, FEBRUARY 8, 9:30 A. M.

EARLE G. JOHNSON, M.D., *Presiding*

*Address of the President*
EARLE G. JOHNSON, M.D., Nebraska Bureau of Examining Boards

*Medical Education in Denmark, Norway and Sweden*
ALBERT B. SABIN, M.D., Professor of Research Pediatrics, University of Cincinnati College of Medicine

*Medical Education in Poland and Finland*
EUGENE B. FERRIS JR., M.D., Associate Professor of Medicine, University of Cincinnati College of Medicine

*Foreign Medical Graduates*
CREIGHTON BARKER, M.D., Secretary, Connecticut Medical Examining Board

*British National Health Act*
MORRIS FISHBEIN, M.D., Editor, THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

TUESDAY AFTERNOON, 12:30 P. M.

*FEDERATION LUNCHEON*

Room To Be Announced

TUESDAY AFTERNOON, FEBRUARY 8, 2:00 P. M.

EARLE G. JOHNSON, M.D., *Presiding*

*Panel Discussion on:*
Licensure of Hospital Residents
Osteopathic and Medical Practice
Foreign Medical Graduates
National Licensing Board
New Licensure Legislation

*Members of the Panel:*
J. EARL MCINTYRE, M.D., Secretary, Michigan Board of Registration in Medicine
GEORGE W. COVEY, M.D., Nebraska Bureau of Examining Boards
ALBERT B. SABIN, M.D., Cincinnati
EUGENE B. FERRIS, M.D., Cincinnati
CREIGHTON BARKER, M.D., New Haven, Conn.
GEORGE H. RUHLAND, M.D., District of Columbia Commission on Licensure
J. W. HOLLOWAY JR., Director, Bureau of Legal Medicine, American Medical Association

TUESDAY AFTERNOON, FEBRUARY 8, 4:00 P. M.

Business Session

## NATIONAL CONFERENCE ON RURAL HEALTH

The fourth annual meeting of the National Conference on Rural Health will take place at the Palmer House Feb. 4 and 5, 1949. The following program has been prepared:

### FRIDAY MORNING

8:00 A. M. *Registration*
Red Lacquer Room

9:00—9:05 A. M. *Address of Welcome*
George F. Lull, M.D., Secretary and General Manager, American Medical Association

9:05—9:15 A. M. *Purpose of Conference*
F. S. Crockett, M.D., Chairman, Committee on Rural Health, American Medical Association

9:15—9:55 A. M. *Health Programs of National Farm Organizations*
Mrs. J. Laning Taylor, Educational Director, The National Cooperative Milk Producers' Federation, Washington, D. C.
Joseph W. Fichter, Master, Ohio State Grange, Columbus, Ohio.
Mrs. Gladys T. Edwards, Director of Education, Farmers Educational and Cooperative Union of America, Denver, Colorado
H. E. Slusher, Chairman, Medical Care Committee, American Farm Bureau Federation, Jefferson City, Missouri

9:55—10:15 A. M. *A State Rural Health Committee in Action*
J. S. De Tar, M.D., Council Member, Committee on Rural Health, Michigan State Medical Society, Milan, Michigan

10:15—10:35 A. M. *Environmental Hygiene*
Ernest E. Stebbins, M.D., Professor of Public Health, Johns Hopkins University School of Public Health, Baltimore

10:35—10:55 A. M. *Animal Diseases Affecting Humans*
H. B. Mulholland, M.D., Committee on Rural Health, American Medical Association, Charlottesville, Virginia

10:55—11:10 A. M. *Intermission (Film)*

11:10—11:30 A. M. *Nutrition and the Soil*
Glen W. Bunting, Manager, Central Farmers' Fertilizer Company, Chicago

11:30—12:00 A. M. *Health Education and Community Responsibility*
Aubrey Gates, Associate Director, Cooperative Extension Work, College of Agriculture, University of Arkansas, Little Rock

12:00—12:30 P. M. *The General Practitioner in Rural Practice*
Ward Darley Jr., M.D., Executive Dean, Health Sciences and Services, University of Colorado School of Medicine, Denver

### PALMER HOUSE, FRIDAY AFTERNOON

Round Table Discussions

2:00—5:00 P. M.

Section I *Cooperative Health Programs for Rural Areas*
- a. Local health units
- b. Local health councils
- c. Cooperative hospitals

Chester Starr, Chairman
Mrs. Dora Barney, Co-Chairman
John W. Ferree, M.D., Discussion Leader

Section II *Environmental Hazards*
- a. Animal diseases affecting human beings
- b. Farm accidents
- c. Environmental hygiene

D. G. Miller, M.D., Chairman
C. W. Kruse, Co-Chairman
Maynard Coe, Discussion Leader

Section III *Health Education—Individual and Community Responsibility*
Roger Corbett, Chairman
Elin Anderson, Co-Chairman
Paul Miller, Discussion Leader

Section IV *The General Practitioner in Rural Practice*
- a. Preparation for Rural Practice
- b. Facilities
- c. Other factors

Franklin Murphy, M.D., Chairman
Lester G. Evans, M.D., Co-Chairman
Mrs. Haven Smith, Discussion Leader

Section V *Nutrition and the Soil*
W. A. Albrecht, Chairman
Jonathan Forman, M.D., Co-Chairman
Glen Bunting, Discussion Leader

### RED LACQUER ROOM, SATURDAY MORNING

9:30 A. M. *Reports of Round Table Committees and Discussions*

1:00 P. M. *Luncheon*
Speakers:
Introduction of W. L. Pressly, M.D., General Practitioner of the Year, Due West, South Carolina
Roscoe L. Sensenich, M.D., President, American Medical Association, South Bend, Indiana
Dr. John O. Christianson, Superintendent of the School of Agriculture, University of Minnesota, St. Paul

## Washington Letter

*(From a Special Correspondent)*

Jan. 3, 1949.

### Voorhees Report Urges Sweeping Federal Medical Reforms

Culminating nearly a year's study, the Voorhees Report was issued December 26 by the Hoover Commission, recommending a large number of drastic changes in the federal government's medical establishment. All of its widely scattered services are affected by the proposals, which are expected to be incorporated in the Hoover Commission's final report on reorganization of the government's executive branch which is to be submitted to Congress. Tracy S. Voorhees, Assistant Secretary of the Army, is chairman of the committee and Dr. Edward D. Churchill, professor of surgery at Harvard University Medical School, vice chairman. Ten of the other fourteen members of the committee are doctors of medicine.

The investigators recommended:

Establishment of a cabinet-status federal department encompassing health, education and welfare activities, with a National Bureau of Health that would administer all general hospitals of the Army, Navy, Veterans Administration and U. S. Public Health Service. The armed services would be left only with one teaching hospital each, overseas hospitals and those station hospitals within the continental limits which were too isolated to make inclusion in the merger practical.

Transfer of all medical functions of the Veterans Administration, including outpatient services now performed at regional and branch offices, to the proposed National Bureau of Health. The latter also would take over operation of St. Elizabeths Hospital, 7,000 bed federal mental institution in the District of Columbia.

Greater utilization by the federal government of private and voluntary hospital facilities throughout the country for care of veterans, servicemen's dependents and other charges, on a reimbursable basis.

Congressional action to decide whether the government should extend medical and hospital care to all veterans, irrespective of financial circumstances; solely to service-connected patients, or to the latter plus non-service-connected patients who are economically unable to pay for private care.

Appointment of a deputy to the Secretary of Defense who would supervise medical services in the armed forces. (Secretary Forrestal recently named Charles Proctor Cooper to fill this newly created position and to be chairman of the Armed Forces Medical Advisory Committee, whose first meeting is expected to be held in January.)

Transfer of Food and Drug Administration to the National Bureau of Health's public health division, whose main functions would be administration of grants-in-aid, operation of a clearing house of information on public health activities and enforcement of laws and regulations on interstate commerce in foods, drugs and medicines.

Retention by the Children's Bureau of its present medical, health and grant-in-aid activities because the Bureau "should function as a staff unit directly responsible to the secretary of the proposed department, rather than having its health and other functions split and united with the major proponent units of the department."

Creation of a coordinating committee on nonmilitary medical research comprising representatives of the National Bureau of Health's research and training division, the Atomic Energy Commission and the Department of Agriculture. Also, establishment of an Inter-Agency Committee on Medical Sciences, representing both military and nonmilitary branches of the federal government, whose primary concern would be with appraisal and allocation of government support to nonfederal research institutions.

Transfer to the proposed research and training division of all operations now performed by the National Institutes of Health (research arm of the U. S. Public Health Service). The division would operate and control the $40,000,000 Clinical Research Center now under construction at suburban Bethesda, Md.

Establishment of a new federal career medical service whose nucleus would be the present personnel of the Veterans Administration hospitals, the commissioned personnel of the U. S. Public Health Service and all medical professional personnel employed under Civil Service. The U. S. commissioned officers of the U. S. Public Health Service would have the option of joining the new service or continuing in present status, "but no new commissions should be issued."

Institution by the U. S. Public Health Service of a study to determine financial needs of the nation's medical schools and recommend how they should be met. "Care must be taken in granting aid to maintain the professional independence and the initiative of the schools. Also the aid should be given in such a way as to increase the output of trained personnel especially in the areas where there are acute deficiencies."

Unification of medical supply procurement.

Over-all coordination of federal organizations in the medical field by the Bureau of the Budget, assisted by an advisory committee, unless a special agency for this purpose is established in the Office of the President.

"We have attempted to outline a method which we hope will correct the extravagances resulting from the present series of unrelated projects and weld these together into an integrated orderly whole," says the Voorhees Report. "With such an organization, staffed by outstanding personnel, it should be possible to utilize our unequaled medical resources to the maximum and by intelligent planning take steps which will make us a healthier and stronger nation."

### Secretary Krug Makes Public Alaskan Health Report

A report urgently recommending correction of Alaska's nine "most urgent" health problems was made public December 9 by Secretary of Interior Julius A. Krug. The report was based on a territorial survey conducted by an American Medical Association committee composed of Drs. John E. Tuhy of Portland, Ore., chairman, Frank H. Douglass of Seattle, W. Charles Martin of Portland, Austin T. Moore of Columbia, S. C., and David B. Law of Seattle. All but Dr. Law, a dentist, are physicians. Alaska's most serious health problems, said the report, are: (1) high incidence of tuberculosis and inadequacy of treatment facilities; (2) shortage of doctors, nurses and technologists; (3) insufficiency of hospital beds in certain communities and absence of any psychiatric hospital in the entire territory; (4) weak control of preventable and communicable disease, especially venereal infections; (5) lack of good sanitation in towns and villages; (6) frequency of alcoholism, with its social and economic consequences; (7) wide prevalence of eye diseases; (8) shortage of dentists and lack of dental care among the natives, and (9) low standards of housing, education and hygiene among natives, conducive to high disease rates.

The American Medical Association group's report to Secretary Krug, who is titular head of the Bureau of Indian Affairs, recommended construction of additional hospital facilities, higher salaries and other inducements to attract physicians and dentists into the Alaska Native Service, construction of a mental hospital in the Matanuska Valley near Anchorage, improvement of living conditions through housing subsidies and certain other measures.

### Retention of $100 Extra Pay for Military Doctors Indorsed

The Advisory Commission on Service Pay (Hook Commission) recommended retention of the $100 a month inducement pay now received by medical and dental officers of the Army, the Navy and the Public Health Service, in its report on revision of the armed services' pay structure. Secretary Forrestal made the report public in late December. Of the approximately fifty types of special or extra pay now in vogue, retention of only three is recommended: hazardous duty, sea and foreign duty (for enlisted personnel only) and the inducement pay for medical and dental officers. However, this $100 extra per month would be withdrawn from interns, who are now eligible to receive it.

It was recommended by the Hook Commission that, prior to expiration of the law granting extra pay for medical and dental officers, Secretary Forrestal appoint a personnel board to decide whether this extra compensation should be continued or whether recruitment of doctors has reached a level that would justify its being terminated. Meanwhile payment should be continued, said the Hook Commission. It added that medical and dental officers "should be given constructive credit for pay and promotion equal to the number of years—not in excess of four—of recognized postgraduate training, unless such years are already credited by virtue of other provisions of the law."

### Forty-Two Medical Schools Receive Psychiatric Training Grants

Award of $1,498,333 in grants to forty-two medical schools for development or expansion of training in psychiatry for undergraduate medical students has been approved by Dr. Leonard A. Scheele, Surgeon General of the U. S. Public Health Service, on recommendation of the National Advisory Mental Health Council. The funds will become available in July 1949. All but five of the grants are for amounts between $34,000 and $37,500 each.

### Houston Naval Hospital Transferred to the Veterans Administration

Veterans Administrator Carl R. Gray Jr. announced transfer to the Veterans Administration of the Navy's 1,000 bed psychiatric hospital at Houston a few days before publication of the Voorhees Report, which advocated the shift. Plans for the Veterans Administration's separate psychiatric hospital, of the same size and which was nearing the construction stage, have been canceled. The transfer will result in a $21,000,000 saving, said Gray, pointing out that it obviates operation of two federal psychiatric institutions across the highway from each other and permits the Veterans Administration to meet needs for 1,000 specialized beds in the Houston area two years earlier than planned.

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## Coming Medical Meetings

Annual Congress on Industrial Health, Chicago, Drake Hotel, Jan. 18-19. Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

Annual Congress on Medical Education and Licensure, Chicago, Palmer House, Feb. 7-8. Dr. Donald G. Anderson, 535 N. Dearborn St., Chicago 10, Secretary.

National Conference on Rural Health, Chicago, Palmer House, Feb. 4-5. Dr. F. S. Crockett, 535 N. Dearborn St., Chicago 10, Chairman.

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Alaska Territorial Medical Association, Juneau, March 3-5. Dr. William P. Blanton, Box 2569, Juneau, Secretary.

American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, New York, Hotel Waldorf-Astoria, March 4. Dr. Norman N. Smith, 291 Whitney Ave., New Haven 11, Conn., Secretary.

American Society for Surgery of the Hand, Chicago, Jan. 21-22. Dr. Joseph H. Boyes, 1401 S. Hope St., Los Angeles 15, Secretary.

International Post-Graduate Medical Assembly of Southwest Texas, San Antonio, Jan. 25-27. Dr. John J. Hinchey, P. O. Box 2445, San Antonio, Secretary.

Southeastern Allergy Association, Durham, N. C., Washington-Duke Hotel, Jan. 22-23. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia, S. C., Secretary.

Southeastern Surgical Congress, Biloxi, Miss., Jan. 24-27. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Ga., Secretary.

Western Section American Urological Association, Coronado, Calif., Hotel del Coronado, Jan. 17-19. Dr. Adolph A. Kutzmann, 1930 Wilshire Blvd., Los Angeles 5, Secretary.

# GOVERNMENT SERVICES

## NAVY

### FIRST ACTIVE DUTY AS INTERNS

The following lieutenants (jg) in the Medical Corps Reserve have been ordered to their first active duty as interns at civilian medical institutions under the Navy's Medical Training Program. On completion of this training, they will serve at naval activities: Robert K. Bench, Long Beach, Calif., to General Hospital of Fresno County, Fresno, Calif.; Rodger L. Buck, Chicago, to Cook County Hospital, Chicago; William C. Crittenden, Birmingham, Ala., to Grasslands Hospital, Valhalla, N. Y.; Paul T. Drenning, Wayne, Pa., to Huron Road Hospital, East Cleveland, Ohio; Bernard E. Ferrara, Charleston, S. C., to Roper Hospital, Charleston, S. C.; Morton W. Friedman, Los Angeles, to Los Angeles County Hospital; William J. Godfrey, Flushing, N. Y., to Queens General Hospital, Jamaica, N. Y.; James E. Goode, Dallas, Texas, to Scott and White Hospital, Temple, Texas; M. Edwin Green Jr., Harrisburg, Pa., to Temple University Hospital, Philadelphia; Walter B. Grenell, St. Petersburg, Fla., to Cook County Hospital, Chicago; George R. Hatcher Jr., Cleveland, to Grasslands Hospital, Valhalla, N. Y.; William M. Hicks Jr., St. Bernard, Ohio, to Cincinnati General Hospital, Cincinnati; Alfred L. Ingerick, Gallipolis, Ohio, to St. Mary's Hospital, Huntington, W. Va.; Jerrold K. Longerbeam, Redlands, Calif., to Los Angeles County Hospital; Joseph F. Lutz, Bloomfield, N. J., to Newark City Hospital, Newark, N. J.; John R. McCarthy, Chicago, to St. Francis Hospital, Evanston, Ill.; John J. Mezzanotte, Philadelphia, to Nazareth Hospital, Philadelphia; Arthur G. Nelson, Clifton, Texas, to St. Luke's Hospital, Chicago; Robert P. Parker, Seattle, to King County Hospital, Seattle; Harold T. Pruessner, San Antonio, Texas, to Philadelphia General Hospital; Leonard A. Sarnat, Chicago, to Cook County Hospital; Richard C. Stevens, Buffalo, to Huron Road Hospital, East Cleveland, Ohio; William D. Swackhamer, Superior, Ariz., to Charity Hospital of Louisiana, New Orleans; John B. Tully Jr., Bronx, N. Y., to Indianapolis General Hospital, Indianapolis, and Louis W. Wileman, Los Angeles, to State of Wisconsin General Hospital, Madison, Wis.

### POSTGRADUATE INSTRUCTION

The following medical officers have been nominated to receive postgraduate instruction in medical specialties: Lieutenant Commander George W. Deyoe, St. Petersburg, Fla., to instruction in children's orthopedics at Carrie Tingley Hospital for Crippled Children, Hot Springs, N. M.; Lieutenants Walter F. Harrison Jr., Woodhaven, N. Y., to a residency in surgery at the Naval Hospital, Bethesda, Md., and Karl R. Whitney, Sudbury, Mass., to instruction in aviation medicine at the School of Aviation Medicine and Research, Pensacola, Fla., and Lieutenants (jg) Benjamin F. Burns, Harrisburg, Pa., to a residency in obstetrics and gynecology at the Naval Hospital, Long Beach, Calif., and John F. Wetegrove, Raymondsville, Texas, to a residency in internal medicine, Naval Hospital, San Diego, Calif.

The following medical officers have been nominated to attend courses of postgraduate instruction: Comdr. Leo W. Olechowski of Detroit to a fellowship in surgery at Northwestern University (Cook County Hospital, Chicago); Lieut. Comdr. Louis P. Ballenberger of Hamlet, N. C., to a residency in otolaryngology at the Naval Hospital, Philadelphia; Lieut. Comdr. Henry R. Ennis of Rahway, N. J., to a fellowship in children's orthopedics at the North Carolina State Orthopedic Hospital, Gastonia, N. C., and Lieut. (jg) Robert A. Loeffler of Medford, Ore., to a residency in general surgery at the Naval Hospital, San Diego, Calif.

### PERSONALS

Comdr. James A. Fields, Retired, of South Boston, Va., and Capt. Richard B. Phillips, M.C.R., of Silver Springs, Md., have been voluntarily recalled to active duty.

Major Herbert G. Giddens, Capt. James P. Perrine and Capt. Robert K. Quinnel have been appointed for residency training in obstetrics and gynecology at the U. S. Naval Hospital, Portsmouth, Va.

## VETERANS ADMINISTRATION

### ELEVEN RADIOISOTOPE UNITS

With the new radioisotope unit at the Veterans Administration Hospital at Nashville, Tenn., the number of such units established by the Veterans Administration is eleven. The other units are at Veterans Administration hospitals in Los Angeles, San Francisco and Van Nuys, Calif.; Framingham, Mass.; New York; Cleveland; Chicago; Minneapolis; Dallas, Texas, and Fort Howard, Md.

In this new program, when a radioactive substance is administered along with remedial drugs, its distribution in the body is checked by means of photographic films or with some such electrical impulse equipment as the Geiger counter. The radioisotopes to be used at present are radiophosphorous, radioiodine, radioiron and radiosodium.

The radioisotope experts from Vanderbilt University in Nashville will work closely with the new radioisotope unit. Active work is expected to start at once. The program at Nashville will be under the general supervision of a special committee of which the hospital manager, Dr. W. E. Cooper, will be chairman and the chiefs of the hospital services will be members. The unit will be directed by Dr. George R. Meneely, assistant chief of medical services at the veterans hospital, who has already done outstanding research with radioisotopes. The Deans committee in Nashville will be represented in the project by a special committee composed of Drs. Howard Curtis, professor of physiology, chairman; Ernest Goodpasture, dean of the Medical School, and Francis G. Slack, professor of physics. Dr. Curtis will be consultant in biophysics to the unit, and Drs. Herbert Francis and Joseph Ivie consultants in radiology.

### RECENT APPOINTMENTS

The following recent transfers and appointments in the Department of Medicine and Surgery have been announced: Dr. John B. Floyd, manager of the Veterans Administration hospital in Outwood, Ky., formerly chief medical officer of the Veterans Administration office in Lexington, Ky.; Dr. Carleton Bates, manager of the Brooklyn, New York, Veterans Administration hospital, formerly with the Veterans Administration hospital in Castle Point, N. Y.; Mr. Noel M. Jaffrey, manager of the Castle Point hospital, formerly staff member of the Brooklyn Veterans Administration hospital; Dr. George S. Littell, manager of the Veterans Administration hospital in Amarillo, Texas, formerly chief of professional services of the Veterans Administration hospital in Temple, Texas.

A recent transfer includes: Dr. Joseph G. Spendlove, chief of professional services of Veterans Administration branch office no. 11 in Seattle, Wash., to the Veterans Administration center in Fort Harrison, Mont., as chief medical officer.

Other recent appointments include: Dr. Albert Oppenheimer as chief, radiological service, Providence, R. I., hospital, and Dr. Pierre E. Provost as chief of eye-ear-nose-throat service, Veterans Administration center, Togus, Maine.

## REVISED REGULATIONS FOR HOMES FOR PARALYZED VETERANS

The regulations governing the eligibility of paralyzed veterans for grants for use in acquiring homes especially designed for wheel chair living have been revised, the Veterans Administration announces, to eliminate the requirement that the veteran's bladder and bowel functions must be paralyzed in order to qualify for a grant up to $10,000. That requirement was in the original instructions issued by the Veterans Administration as contained in Public Law 702 of the 80th Congress. The language of the new instruction defines paralysis of the legs and lower part of the body as "paralysis of both lower extremities produced by lesion of the spinal cord resulting from disease or injury thereof, such as to preclude locomotion without the aid of braces, crutches, canes or a wheel chair, accompanied by paralysis of the lower trunk."

All applications previously disallowed under the original definition will be reviewed in the light of the new instructions. It has been estimated that more than 2,000 veterans may qualify for grants under this law. No veteran who has been turned down need reapply.

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# PUBLIC HEALTH SERVICE

## INFLUENZA INFORMATION CENTER ESTABLISHED

Surgeon General Scheele of the Public Health Service announced December 24 that a plan has been developed by the Surgeons General of the Army, Navy, Air Force and Public Health Service to prevent a serious epidemic of influenza like that which occurred in 1918 and that an Influenza Information Center has been established at the National Institutes of Health, Bethesda, Md. The plan is part of an international program set up by the World Health Organization the objectives of which are to identify new strains of influenza virus as they appear and to evaluate their usefulness for incorporation in influenza vaccine. The program, the success of which will depend largely on the prompt reporting by local physicians and health officers of all suspected cases of influenza, will operate in the United States as follows:

When a significant outbreak of respiratory disease suspected to be influenza has been reported in a given community, the Influenza Information Center will alert diagnostic laboratories in the region, asking them to carry out serologic tests on patients for the presence of antibody against the influenza virus. Certain laboratories will also be asked to assign the affected community a team of investigators experienced in the technics of isolating the virus. As soon as these investigators isolate a new strain of virus, they will send it at once for a complete antigenic analysis to the Strain Study Center of the Influenza Commission, Army Epidemiological Board, Long College of Medicine, Brooklyn. Appropriate strains of the virus which have been isolated will be considered for possible inclusion in commercial vaccine.

While the cooperation of all diagnostic laboratories in the nation is being sought, a number of especially qualified laboratories has been formally invited to participate in the program, and fifty-six have already accepted this invitation.

The international influenza program was proposed during the Fourth International Congress for Microbiology at Copenhagen in July 1947. Two months later the Interim Commission established the International Influenza Center at the National Institute for Medical Research in London. The World Health Organization at its first World Health Assembly approved continuance of this center and recommended that all nations be invited to set up organizations to collaborate with it. The Surgeon General, U. S. Public Health Service, referred this proposal to Dr. R. E. Dyer, Director of the National Institutes of Health, who passed it on for advice to the Virus and Rickettsial Study Section at the Institutes. This group recommended that the program in the United States be built largely around the Army's Influenza Strain Study Center at Long Island College of Medicine and should use existing facilities for investigating influenza.

A committee comprising representatives of the four Surgeons General adopted these recommendations. It was further decided that an Influenza Information Center be established to administer the program in this country and to serve as liaison office between the International Influenza Center and participating American laboratories.

A list of these laboratories follows. The asterisk indicates those equipped for virus isolation as well as serologic tests:

LABORATORIES OPERATED BY THE FEDERAL GOVERNMENT

*Department of the Army*

Army Medical Dept. Research and Graduate School, Washington, D. C.
*First Army Area Medical Laboratory, 90 Church St., New York
Second Army Area Medical Laboratory, Ft. G. G. Meade, Md.
Third Army Area Medical Laboratory, Ft. McPherson, Ga.
*Fourth Army Area Medical Laboratory, Ft. Sam Houston, Texas
Fifth Army Area Medical Laboratory, Ft. Sheridan, Ill.
*Sixth Army Area Medical Laboratory, Ft. Baker, Calif.

*Department of the Navy*

*Navy Medical Research Unit No. 4, Great Lakes, Ill.

*Public Health Service*

*Laboratory of Infectious Diseases, National Institutes of Health, Bethesda, Md.
*Virus Laboratory Branch, Communicable Disease Center, Montgomery, Ala.
*Rocky Mountain Laboratory, Hamilton, Mont.

LABORATORIES OPERATED BY STATE AND LOCAL GOVERNMENTS

*State Laboratories*

*California, Dept. of Public Health, Berkeley
Florida, Board of Health, Jacksonville
*Illinois, Dept. of Public Health, Chicago
Indiana, State Board of Health, Indianapolis
Louisiana, Dept. of Health, New Orleans
Maryland, Dept. of Health, Baltimore
Massachusetts, Dept. of Public Health, Boston
*Minnesota, Dept. of Health, Minneapolis
Missouri, Division of Health, Jefferson City
Nebraska, Dept. of Health, Lincoln
Nevada, Dept. of Health, Reno
New Jersey, Dept. of Health, Trenton
*New York, Dept. of Health, Albany
North Carolina, Board of Health, Raleigh
Ohio, Dept. of Health, Columbus
Oklahoma, Dept. of Health, Oklahoma City
Oregon, Board of Health, Portland
South Carolina, Board of Health, Columbia
Texas, Dept. of Health, Austin
Utah, Dept. of Health, Salt Lake City
Vermont, Dept. of Public Health, Burlington
Virginia, Dept. of Health, Richmond
*Washington, University of Washington, School of Medicine, Seattle (acting for State Dept. of Health)
Wisconsin, Board of Health, Madison
Wyoming, Board of Health, Cheyenne

*Municipal Laboratories*

District of Columbia, Health Dept., Washington
Los Angeles, Dept. of Health
*New York, Public Health Research Institute

*Insular and Territorial Laboratories*

Territory of Alaska, Dept. of Health, Anchorage
Territory of Hawaii, Dept. of Health, Honolulu
*Government of Puerto Rico, School of Tropical Medicine, San Juan

LABORATORIES SUPPORTED BY FUNDS SUPPLIED BY THE FEDERAL GOVERNMENT

*Contractors Under Influenza Commission, Army Epidemiological Board*

*Iowa, Dr. William M. Hale, University of Iowa
*Michigan, Dr. Thomas Francis Jr., University of Michigan
*New York, Dr. Harry M. Rose, Columbia University
*New York, Dr. T. P. Magill, Long Island College of Medicine
*Pennsylvania, Dr. Jonas E. Salk, University of Pittsburgh

*Contractors Under Office of Naval Research*

*Maryland, Dr. T. G. Ward, Johns Hopkins University
*Pennsylvania, Dr. W. Henle, Children's Hospital of Philadelphia

*Grantees Under Research Grants Program, U. S. Public Health Service*

*Connecticut, Dr. E. C. Curnen, Yale University
*Illinois, Dr. C. G. Loosli, University of Chicago
*Maryland, Dr. T. B. Turner, Johns Hopkins University
*Missouri, Dr. H. Pinkerton, St. Louis University
*Pennsylvania, Dr. W. Henle, Children's Hospital of Philadelphia
*Pennsylvania, Dr. M. A. Lauffer, University of Pittsburgh
*Tennessee, Dr. D. H. Sprunt, University of Tennessee
*Utah, Dr. G. R. Leymaster, University of Utah

# PHYSICIANS SEPARATED FROM SERVICE

## ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

### Alabama

| | |
|---|---|
| Carter, Richard D. | Jamestown |
| Crook, Donald H. | Jack |
| Trice, Peter A. Jr. | Thomasville |
| Voyles, Carl M. Jr. | Auburn |
| *Young, Jack R.* | *Florala* |

### Arizona

| | |
|---|---|
| Wood, Joshua P. Jr. | Tucson |

### Arkansas

| | |
|---|---|
| Eisele, William M. | Hot Springs |
| Fulmer, John M. | Booneville |
| Hill, Roy F. Jr. | DeValls Bluff |
| Jackson, Lawrence M. Jr. | Pine Bluff |
| Sammons, Vernon E. Jr. | El Dorado |
| Ward, Herbert W. | Hot Springs |
| Wood, John P. | Mena |
| Wood, Julian D. | Fountain Hill |

### California

| | |
|---|---|
| Amyes, Lowell S. | Los Angeles |
| Baird, Charles G. | Santa Maria |
| Bickerton, John H. Jr. | Ontario |
| *Brenner, Melvin A.* | *Los Angeles* |
| Carson, Samuel P. | Los Angeles |
| Castile, Daniel S. | Hanford |
| Champaign, Donald A. | Los Angeles |
| Hamilton, James A. | San Francisco |
| Hayes, Edward W. Jr. | Monrovia |
| Jeffers, William W. | Fullerton |
| Lloyd, Leslie G. | Huntington Park |
| Luke, Maurice R. | Burlingame |
| Mansell, Denny H. Jr. | Los Angeles |
| Metson, Bates F. | San Francisco |
| Parsons, Darold J. | Oakland |
| *Reidenbach, John C.* | *Oakland* |
| Slaughter, Howard C. | Los Angeles |
| Thomas, Stephen C. Jr. | Oakland |
| Woods, Neal C. Jr. | Alhambra |
| *Zeavin, Bernard* | *San Francisco* |

### Colorado

| | |
|---|---|
| Williams, Lowell K. | Denver |

### District of Columbia

| | |
|---|---|
| Amoroso, William L. | Washington |
| Bean, Harold R. | Washington |
| O'Neill, Allen J. | Washington |

### Florida

| | |
|---|---|
| Howell, Louis M. | Jacksonville |
| *Jenkins, Valentine E.* | *Miami* |
| Jones, George R. | Jacksonville |
| Peek, Eugene G. Jr. | Ocala |
| Philips, Benjamin J. Jr. | Jacksonville |
| Pinkoson, Charles | Gainesville |
| Ryon, Thomas N. | Miami |
| Tugwell, Frank E. | Pensacola |
| Yonge, Henry M. | Pensacola |

### Georgia

| | |
|---|---|
| Bates, William B. Jr. | Waycross |
| Bonner, William H. | Lavonia |
| Cooley, Joe B. | Atlanta |
| Galloway, Benjamin T. Jr. | Moultrie |
| Gillman, Aron N. | Augusta |
| Hamilton, William F. Jr. | Augusta |
| *Harris, Thomas A.* | *Atlanta* |
| Hoffman, Frank | Savannah |
| Hogsette, Jerry B. | Vienna |
| Jacob, Joseph S. | Atlanta |
| Jennings, Henry S. Jr. | Dawson |
| Jordan, Thomas C. Jr. | Bartow |
| Krafka, Joseph F. | Augusta |
| Meadows, John C. Jr. | Athens |
| Mentzer, Dodge D. | Atlanta |
| Patz, Arnall | Elberton |
| Sams, William C. Jr. | Dallas |
| Sims, Frederick E. | Decatur |
| Teate, Hentz L. Jr. | Thomasville |
| Witham, Abner C. | Atlanta |

### Idaho

| | |
|---|---|
| Babcock, Donald E. | Buhl |
| Mather, John A. | Boise |
| Woodcock, Herbert M. | Coeur d'Alene |

### Illinois

| | |
|---|---|
| Angle, Richard M. | Chicago |
| Antonow, Arthur M. | Chicago |
| Branden, Edwin S. Jr. | Evanston |
| Camras, Sidney | Chicago |
| Caporale, Frank S. | Chicago |
| Cataldo, Marne | Chicago |
| Clayton, Frederic K. | Farmington |
| Dashut-Dante, Edward | Chicago |
| Eisenberg, Harold J. | Chicago |
| Ivy, John H. | Chicago |
| Jakofsky, Maurice | Chicago |
| Kearney, Walter R. Jr. | Chicago |
| Klaren, Earl V. | Chicago |
| Korn, Roy J. | Chicago |
| Marzinelli, Ferdinand J. | Chicago |
| Novak, Frank J. III | Riverside |
| O'Connor, William R. | Chicago |
| Pantone, Anton M. | Chicago |
| Ramey, Charles A. | Danville |
| Rapoport, Leonard P. | Chicago |
| Shalova, Charles H. | Chicago |
| Strauss, Sol S. | Chicago |
| Turgi, Robert W. | Oak Park |
| Valencia, Elpidio I. | Chicago |
| Vykouk, Frank J. | Cicero |
| Wells, Charles K. | Waltonville |
| Wilhelm, Warren F. | Chicago |
| Wilson, Scottie J. | Urbana |
| Zuidema, Jacob J. | Chicago |

### Indiana

| | |
|---|---|
| Ahlering, George H. | Indianapolis |
| Allen, Robert L. | Fort Wayne |
| Allen, Robert T. | Clark's Hill |
| Benchik, Frank A. | East Chicago |
| Bergan, Joseph A. | South Bend |
| Boaz, Willard D. | North Manchester |
| Bopp, Henry W. Jr. | Terre Haute |
| Cook, Thomas D. | Hammond |
| Doran, Jordan H. | Burket |
| Everett, Daniel W. | Indianapolis |
| Gaddis, Newell C. | Anderson |
| Glaser, Edward J. | Brookville |
| Haller, Robert L. | Fort Wayne |
| Hamp, Arthur K. | Kokomo |
| Haymond, George M. | North Manchester |
| Huse, *William M.* | *Indianapolis* |
| Johnson, Owen B. | Peru |
| Knowles, Robert P. | Indianapolis |
| Labotka, Charles A. | Hammond |
| Lehman, Kenneth M. | Goshen |
| Little, William J. | Bicknell |
| Lynxwiler, Chester P. | Evansville |
| Manifold, Harold M. | Ingalls |
| McClintock, James A. | Muncie |
| Morphew, Raymond | Indianapolis |
| O'Bryan, Richard B. | Columbus |
| Priebe, Fred H. | Ladoga |
| *Raphael, Robert L.* | *Evansville* |
| Rowdabaugh, Marshall J. | Warsaw |
| Scamahorn, Malcolm O. | Indianapolis |
| Schreiner, John E. | Anderson |
| Sibbitt, Joseph W. | Frankfort |
| Van Kirk, John R. | Kentland |
| Van Sickle, Walter J. | Indianapolis |
| Walter, William A. Jr. | Gary |
| Weiss, Eugene | South Bend |
| Whiteman, Rex K. | Logansport |
| Wiley, William M. | Shelbyville |
| Wohlfeld, Gerald M. | Indianapolis |

### Iowa

| | |
|---|---|
| Aagesen, Carl A. | Dows |
| Ahmann, Edward J. | Sioux City |
| *Conkling, Russell W.* | Des Moines |
| Gutenkauf, Charles H. | Marcus |

### Iowa—Continued

| | |
|---|---|
| Miller, Richard L. | Waterloo |
| Morton, Richard G. | Algona |
| Nemmers, Gerald J. | Lamotte |
| Singer, John R. | North Newton |
| Watson, Charles F. | Humboldt |

### Kansas

| | |
|---|---|
| Berkey, Vernon A. | Mulberry |
| Nolan, James R. | Kansas City |

### Kentucky

| | |
|---|---|
| Boles, Robert G. | Louisville |
| Leake, Robert S. | Fort Thomas |
| Nolan, Robert B. | Harlan |
| Pfister, Glenn L. | Fort Thomas |
| *Whitaker, Howard W. Jr.* | *Louisville* |

### Louisiana

| | |
|---|---|
| Batson, Hiram W. K. | New Orleans |
| Welch, George E. | New Orleans |
| White, Roy Jr. | New Orleans |

### Maine

| | |
|---|---|
| Beaullieu, Gerald A. | Jeanerette |
| Lord, Harrison L. | Takoma Park |
| Meserve, Francis B. | Caribou |
| Stetson, Lawrence J. | Auburn |
| Weinberg, Harold H. | Baltimore |
| Weiss, Moe | Mount Rainier |
| Wickert, Clifford J. | Baltimore |
| Young, Joseph M. | Baltimore |

### Maryland

| | |
|---|---|
| Bell, Houston L. | Williamsport |
| Carr, Charles E. Jr. | Baltimore |
| *Gill, Johnathan B.* | Ashton |
| Hall, Arthur T. Jr. | Baltimore |
| Hammond, Daniel O. | Baltimore |
| Kehne, Wilmer D. | Frederick |
| Kenworthy, Richard A. 3d | Centreville |
| Norment, Richard B. III | Hagerstown |
| Patton, John D. | Bel Air |
| Riley, Eugene J. | Baltimore |
| Somerville, Donald L. | Cumberland |
| Weintraub, Joseph | Baltimore |

### Massachusetts

| | |
|---|---|
| Adelson, Lester | Chilsen |
| Arnett, Vitold | Worcester |
| Dickens, Dale R. | Worcester |
| Johnson, Melvin Julius | Worcester |
| Vezina, Raoul E. | Springfield |
| Young, Bradford W. | Boston |

### Michigan

| | |
|---|---|
| Birk, Wilbur R. | Ann Arbor |
| Brashares, Zane A. | *Jackson* |
| Carron, Dean P. | Detroit |
| Cordes, Jerome F. | Leland |
| Elmendorf, Ed. N. II | St. Clair Shores |
| Getty, William H. | Port Huron |
| Hendrickson, Willard J. | Battle Creek |
| Howard, Frank W. | Benton Harbor |
| McGinnes, Harold P. | Charlotte |
| Magielski, John E. | Detroit |
| O'Dell, Charles W. | Three Rivers |
| Winchell, Clarence P. | Ionia |
| Worgess, Duane R. | Battle Creek |

### Minnesota

| | |
|---|---|
| Belshe, Joseph C. | Northfield |
| Leider, Allan R. | St. Paul |
| Whiting, Adolph M. | Minneapolis |

### Mississippi

| | |
|---|---|
| Ainsworth, William L. | Bay Springs |
| Austin, Samuel D. | Harperville |
| Truman, Prentise A. | Horn Lake |
| Zeigel, Howard V. | Cleveland |

# PHYSICIANS SEPARATED FROM SERVICE

## Missouri

Alex, Morris..................St. Louis
Bumgarner, James E.............Odessa
Clough, John.....................Maysville
Crouch, William H. Jr.............Linn
Doores, James R...............Bronaugh
Hall, Robert H..................St. Louis
Inkley, John J...................St. Louis
Johnson, Norton E...............St. Louis
Mudd, Joseph F. G.............St. Louis
Penninger, William H...Mountain View
Rufe, Jack R..............Kansas City
Washington, Edward L........Hannibal
Wool, Frohman..................St. Louis

## Montana

Cole, Frank V..................Anaconda
Danielson, John L.............Anaconda
Hilgert, Frederick L.............Laurel

## Nebraska

Campbell, Norman R.........Scottsbluff
Foe, Adrian A...............Red Cloud
Gottschalk, Robert H............Lincoln
Pantano, Tonny R................Omaha
Pavelsek, Joseph W.............Holdrege
Peltier, Leonard F...............Lincoln
Redelfs, John W..................Omaha
White, John C. ..................Omaha

## New Hampshire

Demopoulos, James T.............Dover
Woodbury, John W.............Madison

## New Jersey

Anthony, John J...........Hammonton
Beaugard, Peter A..........Jersey City
Castiglia, Peter C.................Passaic
Chapman, Stanley B.....Ridgefield Park
Collinson, Daniel J......New Monmouth
Cooper, Kent P..............Maplewood
Dewing, Stephen B............Princeton
Gadek, Raymond J.........Perth Amboy
Guttmann, John S. Jr............Clifton
Harryman, William K. Jr....Hackensack
Hertzberg, Arthur D...........Bayonne
Kline, Oram R. Jr............Woodbury
Larner, Joseph...................Orange
McKeever, John B.........Spring Lake
Magee, Alfred J.............Jersey City
Matteson, Albert R. Jr.........Paterson
Nutzel, Leon P...................Nutley
Ott, Franklin B..................Newark
Piness, Sidney G..............Plainfield
Puff, Robert C...........Haddon Hgts.
Ritzenthaler, John G..........Montclair
Roe, William J..................Paterson
Rotondi, Leonard J.............Newark
Sandick, Herbert............Jersey City
Schaefer, Franklin H........Jersey City
Siegendorf, Saul...................Passaic
Sommer, Julius J. G...........Elizabeth
Storer, John .....................Pitman
Turkish, Martin.................Bayonne
Votos, Anthony S.......New Brunswick
White, Ensley M. Jr..........Red Bank
Wickenden, Thomas C......Short Hills

## New York

Aaron, Jules B................Brooklyn
Bannon, Charles R..........Glens Falls
Barsa, Joseph A.....................Bronx
Baum, Gilbert.................Brooklyn
Berlin, Paul F..................Brooklyn
Burt, James C.................Rochester
Callahan, Justin T...........New York
Cerasoli, Arnold J..................Bronx
Goldberg, Alfred..............Brooklyn
Harris, Leon A..................Syracuse
Laglia, Vito P.....................Buffalo
Rutecki, Joseph E................Buffalo
Tracy, William J. Jr............Hornell
Tuke, Charles T...............Rochester
Turin, Richard D...............Brooklyn
Uberti, Bruno.................New York

## New York—Continued

Van den Bosch, Thomas Jr......Mineola
Victoroff, Victor M..........New York
Von Gal, Herbert V...........Brewster
Watrous, Joseph B. Jr......Binghamton
Watson, Tompkins G........Middleburg
Williams, Frederick D..........Fairport
Wilson, William E...........New York
Worden, Whiting F. G....Saranac Lake
Yerkovich, Anthony C......Lackawanna
Zeldis, Louis J...............Rochester
Zelman, Stanley..............Lawrence

## North Carolina

Abernethy, Joseph W......Granite Falls
Bailey, Claude F.........Elizabeth City
Bobbitt, Robert L.........Rocky Mount
Bradsher, James D.............Roxboro
Eaker, Ralph G................Lawndale
Henninger, Joseph B........Chapel Hill
Henson, Joseph B. Jr.........Snow Hill
Holt, Earl P..................Oak Ridge
Huffstetler, William H. Jr...Haw River
Johnston, George B.............Kelford
Minges, Ray D...............Greenville
Moore, Horace G. Jr........Wilmington
Ruffin, Clarence L..............Tarboro
Thomas, James V........Winston-Salem
Truslow, Roy E....................Spray
White, Hayes M. Jr.............Raleigh
Wilkerson, Charles B. Jr........Raleigh
Witchers, Walter B...........Charlotte
Wooten, Cecil W. Jr............Kinston

## North Dakota

Boyd, John F.....................Fargo
Michels, Arthur G...............Oberon
Pust, Earl W.................Fessenden

## Ohio

Abrams, Bernard S....Cleveland Heights
Baumann, David P..............Dayton
Crawford, Howard R. .........Cincinnati
Downey, Joseph F............Cincinnati
Hamsher, John Biddle.........St. Paris
Hatfield, Charles J. ...........Columbus
Jaffe, Marvin..............Youngstown
Katz, Elmer G................Cincinnati
Miller, Charles J. Jr...New Philadelphia
Mithoefer, John C............Cincinnati
Mueller, Richard P...........Cleveland
Owens, Jack E...............Lakewood
Peerless, Sidney A...........Cincinnati
Sidoti, Vincent J..............Cleveland
Sneed, William R. Jr..........Hamilton
Vogel, Robert A..............Columbus
Welty, Kenneth A...................Lima
Zegiob, Charles G................Lorain

## Oklahoma

Allgood, Edward A..............Hobart
Anderson, Thomas P.....Oklahoma City
Brown, Leonard H...........Muskogee
Childers, Stanley G..............Tipton
Dardis, Walter T........Oklahoma City
Ellis, Richard A................Duncan
Ivey, Roy D.....................Sallisaw
Kouri, Paul......................Granite
Miller, Raymond D................Hollis
Percefull, Sabin C...................Alva
Shellenberger, Charles G..Oklahoma City
Simon, Ralph ....................Clinton
Smith, Byron F.....................Tulsa
Smith, Henry C..................Lawton
Trzaska, Henry C........Oklahoma City

## Oregon

Camber, Rober L..............Portland
Campbell, Robert A..........The Dalles
Flanagan, Roger M............Portland
McGill, Clinto S. Jr............Portland
Pace, William Roby Jr.........Portland
Payne, Robert D...............Ontario
Piestrak, Victor J..............Portland
Young, Robert D..............Portland

## Pennsylvania

Arthur, Joseph N. Jr........Pittsburgh
Bearzy, Herman J............Pittsburgh
Burns, William T............Harrisburg
Colgan, Harry J. ............Pittsburgh
Cubler, Edward W..........Philadelphia
Dusckas, George J.................Erie
Fornasier, Mario E.........Philadelphia
Fritz, Karl J. Jr..............Johnstown
Guie, Robert W.................Dunbar
Huot, David A...............Pittsburgh
Ivins, Samuel P.................Chester
Jackson, Richard D.................Erie
Kelton, Franklin C...........St. Davids
Kutz, Eugene R.................Hazelton
Labowskie, Eugene M.......Philadelphia
Lockwood, Robert M.........Haverford
McConahy, John G. III......New Castle
Ryan, Lawrence W............Norwood
Rydze, Robert A.............Pittsburgh
Schlaff, Zachary............Philadelphia
Updegrove, Robert A...........Herndon
Waltemyer, William C. Jr...Gettysburg
Weber, William D..................Erie
Winer, Melvin L.............Pittsburgh
Wolkowicz, Michal I........Philadelphia

## Rhode Island

Orme, Robert J..............Providence

## South Carolina

Adickes, George C..................York
deSaussure, Charlton ........Charleston
Poynor, Charles M...........Charleston
Raisin, Aaron S..............Charleston
West, George F.................Camden

## South Dakota

Argabrite, John W..........Watertown
Wood, George F. Jr.........Watertown

## Tennessee

Austin, Grover W........Cottage Grove
Burkhart, John H.............Knoxville
Chalfant, Robert L............Nashville
Pruitt, Maurice C.............Nashville
Webber, Alred B.......Madison College

## Texas

Addison, Eugene M..........Huntsville
Berchelmann, August G....San Antonio
Campos, Francisco J...........El Paso
Childress, James L..............Joaquin
Colletti, Ben M.............Port Arthur
Heath, Joe Dibrell..................Dallas
Holmes, Robert L. Jr..............Dallas
Jacob, Norman H. Jr.........Yorktown
Kee, John L. Jr....................Waco
Langdon, Robert G................Dallas
Leggert, Elbert R...........Fort Worth
McVicker, Bobby..................Ruck
Magliolo, Albert M............Galveston
Mitchell, Donald D.......Corpus Christi
Neel, Joseph C. Jr..........Fort Worth
Niblo, Grady Jr....................Dallas
Oliver, Billy B...............Commerce
Rivas, Jose A...................Cleburne
Roddy, William N..................Waco
Skaggs, Ray H. Jr..............Houston
Smith, Marshall L. .............Vernon
Snapp, Forrest E...............Houston
Thomas, Henry W. Jr........Commerce
Trulove, Laurance A...........Amarillo
Voulgaris, Dennis M...........Houston
Wilkinson, John M.........San Antonio
Zabbia, Carl A......................Dallas

## Washington

Boals, David C....................Seattle
Boutin, Frank J..................Spokane
Davis, Richard T.................Tacoma
Holderby, Harland W.........Toppenish
Johnson, Frank R.............S. Seattle
McMakin, Ward C.................Camas
Mullins, John R...................Yakima

# Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

## ALABAMA

**Portrait of Dr. Harris.**—A portrait of Dr. Seale Harris, Birmingham, professor emeritus of medicine, was presented to the Medical College of Alabama on the evening of December 17 as a gift of the doctors of Alabama. Dr. Harris was professor of medicine at the Medical College of Alabama when the school was located in Mobile. He has also done renowned work on hyperinsulinism and as a medical biographer. The presentation was made by Dr. Lon Grove of Atlanta.

## COLORADO

**Governor's Health Council.**—A committee of thirty-three persons has been appointed by Governor Lee Knous to organize a legislative campaign for the passage of proposed health bills to be introduced in the 1949 state legislative session and to carry on a statewide educational program regarding the bills. Dr. Florence R. Sabin, Denver, is chairman.

**Grants to Medical Center.**—The University of Colorado Medical Center received more than $250,000 in the year ending November 1 for 131 major projects under way at the center. Grants in aid from private sources totaled $36,953, and the rest was received from government agencies. The totals do not include funds received from the Child Research Council. Eleven major government projects are sponsored by the U. S. Public Health Service and the Army and Navy.

## DISTRICT OF COLUMBIA

**Society Cites Christie and Wall.**—The Medical Society of the District of Columbia presented certificates for meritorious service to Drs. Arthur C. Christie and Joseph S. Wall at their recent annual meeting. Dr. Christie was cited as a "public-spirited citizen [who] has by his unflagging interest and wholehearted endeavor greatly advanced the cause of better medical care." Dr. Wall, who was head of the department of pediatrics at Georgetown University School of Medicine, was cited for his outstanding contribution as a citizen and credited with having done more than anyone else for passage of the present Healing Arts Practice Act in the District of Columbia. Both physicians are past presidents of the society.

**Cancer Research.**—Checks for two grants for cancer research were given to George Washington University by the District and American cancer societies. The funds will be used to provide facilities for all projects now being carried on at the Warwick Memorial Clinic. These facilities will include hiring a chemist for a radioactive tracer laboratory under the direction of Paul K. Smith, Ph.D., professor of pharmacology, the hiring of a tissue culture technician for the screening of chemicals as regards their action on malignant cells and the maintenance of four beds in George Washington University Hospital for cancer cases under study. This brings to eight the number of such beds now being maintained at the hospital. The other four are being supported as part of a cooperative venture between the university and the National Institutes of Health.

## ILLINOIS

**Conferences on Rural Health.**—The Illinois State Medical Society has arranged two conferences on health problems of rural areas during January. The session which meets at the Emmerson Hotel, Mount Vernon, January 20, will bring in farm, medical, 4-H Club and state health leaders by invitation from the counties of about one third of the state south of a line through Calhoun County. The Peoria conference covers the area to the north and west. Discussions on tuberculosis, the hospital construction act as it affects Illinois planning, the opportunities offered youth in medicine and allied professions and the compulsory health insurance programs are on the program; these and cancer and county health departments will be discussed at the second conference, to be held at the Pere Marquette Hotel, Peoria, January 21.

**Suburban Health Survey.**—The Committee on Chicago-Cook County Health Survey, Health Division of the Council of Social Agencies of Chicago-Cook County, says that suburban health service is short of help. There are 40 public health nurses in Cook County outside of Chicago to watch over its 800,000 population, a proportion of 1 to nearly 20,000; modern public health standards call for a proportion of 1 to 5,000. There should be, the committee says, nearly 160 nurses. The proposed 1949 budget asks for 12 additional. The deficiency is equally manifest in other phases of public health work. Public health standards call for 1 sanitary engineer and 1 sanitarian for every 50,000 population and 1 health educator and 1 nutritionist for every 100,000, or a staff of 16 engineers, 16 sanitarians, 8 educators and 8 nutritionists. Against that ideal standard, the department has 4 sanitary engineers and 1 each of the other categories. The survey committee is urging the board of commissioners of Cook County to provide a substantial increase for suburban public health work in 1949. The increase in suburban population, some 175,000 persons in five years, has intensified the needs of the Cook County Department of Public Health, which has asked a budget of $352,000, compared to $146,000 last year. With this increase, according to a spokesman of the survey, suburban expenditure for health protection will be far below the minimum standard of $1 per capita.

### Chicago

**Appoint Chairman of Pediatric Department.**—Dr. John A. Bigler has been named acting chairman of the department of pediatrics at Northwestern University Medical School and medical director of Childrens Memorial Hospital, replacing Dr. Stanley Gibson, who retired December 1. Dr. Bigler has been a member of the medical faculty since 1930 and associate professor of pediatrics since 1944. He is a graduate of Rush Medical College, 1923.

**Exhibit in Memory of Dr. Irving Cutter.**—To honor the late Dr. Irving S. Cutter, former health editor of the *Chicago Daily Tribune* and for many years dean of Northwestern University Medical School, the university recently opened an exhibit of photographs, manuscripts and rare volumes in its Chicago campus medical library. Dr. Cutter took over the *Tribune* "How to Keep Well" column after the retirement of its previous editor, the late Dr. William A. Evans, in 1934, and conducted it until his death Feb. 2, 1945. The exhibit includes rare books from Dr. Cutter's collection of early works on midwifery and manuscripts of his original contributions in the fields of medical education and history.

**Personals.**—Dr. Louis N. Katz, director, cardiovascular department, Michael Reese Hospital, was the guest speaker at the postgraduate course in cardiology given November 29 to December 2 by the Dallas (Texas) Southern Clinical Society. He also addressed the Dallas Internists Club on "The Control of the Coronary Circulation" and the Dallas County Medical Society on "The Progress of Coronary Disease."——Dr. Ludvig Hektoen was awarded the first Honorary Fellowship in the College of American Pathologists October 11 in acknowledgment of his distinguished career and outstanding service to pathologists.——Dr. James T. Case was presented the Merito Militar Medal recently in ceremonies in México, D. F. He was commended for his assistance to Mexican physicians who have come to the United States for postgraduate specialty training, some of whom served as his residents.

**Institute of Medicine.**—At the annual meeting of the Institute of Medicine of Chicago on December 7, an illuminated parchment scroll was presented to Dr. George H. Coleman by the board of governors and officers as a tribute of appreciation for his outstanding contribution to the welfare of the institute throughout twenty-five years of continuous service as secretary. Drs. Warren W. Furey, Eric Oldberg, Charles B. Puestow and H. Prather Saunders were elected to the board of directors. Officers for 1949 are Drs. Henry T. Ricketts, chairman of the board of governors; William F. Petersen, vice chairman of the board; Herman L. Kretschmer, president; Archibald L. Hoyne, vice president; George H. Coleman, secretary, and Grant H. Laing, treasurer.——Citizen fellowship in the Institute of Medicine was conferred on Miss Ella M. Salmonsen, medical librarian of the John Crerar Library, for her contributions as medical librarian, compiler and indexer.

## INDIANA

**State Medical Election.**—Dr. Augustus P. Hauss of New Albany assumed the presidency of the Indiana State Medical Association January 1, and Dr. Claude S. Black of Warren became president-elect. Dr. Arthur F. Weyerbacher of Indianapolis is treasurer.

**Sewage Treatment Plants.**—Eighty-nine Indiana cities and towns are planning sewage plants or additions to existing facilities to cost $47,000,000. Under the program 95 per cent of the state's urban population will be included in the areas where treatment is provided.

**Set Date for Centennial Meeting.**—The centennial celebration of the Indiana State Medical Association will be held September 26-29 at Indianapolis. Dr. J. Neill Garber of Indianapolis is chairman of the committee on arrangements. An extensive program will be developed.

## MARYLAND

**New Department of Biophysics.**—Five scientists have been named to faculty posts in a new Johns Hopkins University department of biophysics, now called the Jenkins Department of the university in honor of the late Thomas C. Jenkins. Dr. Haldan K. Hartline, professor of biophysics and chairman of the new department, is a graduate of Johns Hopkins University, a former fellow of the National Research Council in medical sciences and from 1936 to 1940 and from 1942 to the present was on the faculty of the University of Pennsylvania. Others named are John P. Hervey, M.S., Martin G. Larrabee, Ph.D., Frank Brink Jr., Ph.D., and Philip W. Davies. Dr. Larrabee and Mr. Davies are associate professors, and Dr. Brink and Mr. Hervey assistant professors. All of the new appointees are at the University of Pennsylvania, where they have been working with Dr. Bronk in biophysics. Dr. Bronk became president of Johns Hopkins University January 1.

## MISSOURI

**Honor Bulletin Editor.**—The Council of the Greene County Medical Society recently honored Dr. Paul F. Cole, Springfield, founder of the society's *Bulletin*, past president and for twenty-seven years an active member, by elevation to honor membership. Dr. Cole founded the *Bulletin* in 1942 to keep members at home and at war informed of local activities. He relinquished the editorship in 1947 but served in an advisory capacity until his retirement last June.

## NEW JERSEY

**Dr. Winnek Dies.**—Philip S. Winnek, Ph.D., who when research chemist for the American Cyanamid Company in Stamford, Conn., played a part in the development of sulfadiazine and sulfaguanidine, died in the Morristown Memorial Hospital December 18, aged 40.

**Meeting on Tumors.**—The New Jersey Oncological Society will hold a panel discussion January 11 at 9 p. m. at St. Michael's Hospital, Newark. Subjects under discussion will be "The Biologic Aspects of Neoplasms," "The Effect of Nutrition on Rous Chicken Sarcoma," and "Comparison of Rous Chicken Sarcoma to Human Neoplasia." Membership is open to doctors of New Jersey interested in the study of tumors and in good standing in their local county medical society.

## NEW YORK

**Society News.**—The Medical Society of the State of New York with the cooperation of the New York State Department of Health has arranged the following lecture for the Jefferson County Medical Society January 13, 8:30 p. m. at the Hotel Woodruff in Watertown. Dr. Albert J. Ritzmann, New York, will speak on "Disorders of the Thyroid Gland: Diagnosis and Management; Use of Thiouracil."

**Increase State Aid to Crippled Children.**—Beginning January 1 state aid to general and convalescent hospitals for rehabilitation of physically handicapped children was increased from $750,000 to $900,000 a year. The maximum daily rate for care of children in general hospitals was increased from $6.25 to $8.50, with the state paying half. New York City will pay the other half for its residents, and upstate the county will pay it. Maximum daily rate for care of children in convalescent hospitals is increased from $5 to $6 a day. During 1947 the number of physically handicapped children including spastics, paralytics and amputees cared for in hospitals with state aid was 5,600. Most of those assisted are under 21 years of age, but a small number of persons over that age who have suffered from poliomyelitis are eligible for treatment.

### New York City

**Fourth Harvey Lecture.**—Dr. Carl F. Schmidt, professor of pharmacology, University of Pennsylvania School of Medicine, Philadelphia, will deliver the fourth Harvey Lecture of the current series at the New York Academy of Medicine on January 20, on "Quantitative Measurement of Cerebral Blood Flow in Man."

**New York University Doctors Receive Army-Navy Award.**—The Certificate of Appreciation, a joint U. S. Army-Navy award for "patriotic civilian service," was recently presented to three New York University College of Medicine faculty members: Dr. William S. Tillett, chairman of the department of medicine; Dr. Colin M. MacLeod, chairman of the department of microbiology, and R. Keith Cannan, D.Sc., chairman of the department of chemistry.

**Salmon Memorial Lectures.**—Dr. Stanley Cobb, Bullard professor of neuropathology at Harvard Medical School since 1926, has been selected the Salmon Memorial Lecturer for 1949. Dr. Cobb has been psychiatrist in chief of the Massachusetts General Hospital for the last fifteen years. The Salmon Committee on Psychiatry and Mental Hygiene, appointed by the New York Academy of Medicine, has selected as the lecturer each year since 1932 a specialist who has made some outstanding contribution.

**Panel Discussions for General Practitioners.**—Five panel discussions in medicine and surgery to aid the general practitioner will be held at the New York University-Bellevue Medical Center beginning January 26 and extending through May 25. Questions from the floor will play a prominent part in each session. Sponsored by the Alumni Association, New York University College of Medicine, the panels will make available to doctors of the Greater New York Area, without cost, the experience of more than twenty faculty members of the College of Medicine, Cornell Medical School and the Columbia University College of Physicians and Surgeons. All sessions will be held from 8:30 to 10 p. m. Admission will be by card, and arrangements are under the direction of Dr. William Goldring, chairman, Committee on Science and Education, Alumni Association, New York University College of Medicine. The schedule is as follows:

Jan. 26, Arthritis. Moderator, Currier McEwen; Richard H. Freyberg, Edward F. Hartung and Otto Steinbrocker.
March 2, Hypertension. Moderator, Herbert Chasis; George A. Perera, William Goldring, J. William Hinton and Homer W. Smith.
March 30, Peripheral Vascular Diseases. Moderator, Ludwig W. Eichna; Wallace B. Murphy, Emanuel M. Papper, and Julius J. Sachs.
April 27, Congenital Heart Disease. Moderator, Clarence E. de la Chapelle, with Janet S. Baldwin, Charles S. Kossmann, Herbert C. Maier and Henry K. Taylor.
May 25, Antibiotics. Moderator, Colin M. MacLeod.

**Seminar on Venereal Disease.**—A panel of specialists in the diagnosis and treatment of syphilis and gonorrhea will conduct a seminar on venereal disease at the New York City Department of Health, which begins January 15, and will continue weekly thereafter through April 30. Meetings will be held at 10:30 a. m. in the second floor auditorium of the health department, 125 Worth Street, Manhattan. Attendance will be open to physicians, nurses, social workers, laboratory personnel, teachers and others concerned with the control of venereal disease. The lecture schedule follows:

Jan. 15, Evan W. Thomas, Modern Treatment of Early Syphilis.
Jan. 22, Adolph Jacoby, Treatment of Gonorrhea.
Jan. 29, Borris A. Kornblith, Treatment of the Minor Venereal Diseases.
Feb. 5, Richard C. Arnold, Serodiagnosis of Syphilis.
Feb. 12, Holiday.
Feb. 19, Alfred Cohn, Diagnostic and Immunologic Aspects in the Field of Venereal Disease.
Feb. 26, Joseph E. Moore, Office Management of the Patient with Syphilis.
March 5, Samuel S. Paley, Cardiovascular Syphilis.
March 12, Norman R. Ingraham Jr., Philadelphia, Syphilis in Pregnancy.
March 19, Bernard I. Kaplan, Latent and Late Syphilis.
March 26, E. Gurney Clark, The Physician as an Epidemiologist in Venereal Disease.
April 2, Frank C. Combes, Differential Diagnosis of Early Syphilis.
April 9, Dabney Moon-Adams, Congenital Syphilis.
April 16, William Leifer, Ambulatory Treatment of Syphilis.
April 23, Bernhard Dattner, Syphilis of the Central Nervous System.
April 30, Milton Helpern, Syphilis and Sudden Death.

## PENNSYLVANIA

**The Donora Disaster.**—Dr. Clarence A. Mills, head of the Experimental Medicine Department at the University of Cincinnati College of Medicine, on returning from his third visit to investigate the recent Donora situation stated that the Borough Council at his suggestion has undertaken a house to house survey in that community which at the time of his preliminary report had included 7,670 of the town's 13,500 citizens. The situation at Donora on October 30 is suspected of being caused by fumes from a zinc smelter. Dr. Mills said that more than 5,000 of the inhabitants are being found affected by the October 30 poisoning smog in addition to the 20 human deaths and some 800 animals killed.

### Philadelphia

**Grants for Psychiatric Training.**—The Woman's Medical College has received $37,302 as a grant under the National Mental Health Act for developing psychiatric training for undergraduate medical students. The funds will be made avialable for the school year 1949-1950 and will be paid in annual allotments over a three year period.

## TENNESSEE

**Oak Ridge Institute of Nuclear Studies.**—Dr. Marshall H. Brucer, assistant professor of physiology at the University of Texas School of Medicine, Houston, has been appointed chairman of the Medical Division of the Oak Ridge Institute of Nuclear Studies to direct the cancer research program and the training of medical and research personnel. Russel S. Poor, Ph.D., dean of the Graduate School of Alabama Polytechnic Institute, Auburn, was also recently named chairman of the University of Tennessee Relations Division of the institute. Both men assumed duties January 1. The institute program, which will be housed in a section of the Oak Ridge Hospital, will have facilities for treating a limited number of patients who will be drawn from twenty Southern medical schools which are participating in the program. Patients will be admitted only through special committees set up at the cooperating medical schools. It will be some months before patients can be accepted. Dr. Brucer is a graduate of Northwestern University Medical School, Chicago, 1942. He served as surgeon in the Airborne Command at Camp Mackall, N. C., for two and a half years during the late war, after which he was on the medical staff of Bruns General Hospital (U. S. Army) in Santa Fe, New Mexico. He joined the University of Texas Medical School after his release from the Army in 1946.

## VIRGINIA

**The Stoneburner Lecture.**—Dr. Eugene A. Stead Jr., professor of medicine, Duke University School of Medicine, Durham, N. C., will deliver the Lewis T. Stoneburner III Lecture at the Medical College of Virginia, Richmond, January 14. This lectureship was established at the college last year by friends who were members of the 45th General Hospital with Capt. Stoneburner, an honor graduate in medicine at the college in the class of 1937, who lost his life in World War II.

## WISCONSIN

**Convocation Speaker.**—Dr. Oscar G. Moland, Augusta, will speak at the convocation of the University of Wisconsin Medical School, Madison, January 12 at 4 p. m. in the Service Memorial Institutes Building. His subject will be "From the Viewpoint of the Country Physician." Dr. Moland is a graduate of the university, 1935.

**Broadcast Postgraduate Programs.**—The University of Wisconsin Medical School, Madison, will use the frequency modulation facilities of the university's radio station WHA in presenting from time to time conferences, symposiums and medical lectures focused primarily for the medical practitioner of Wisconsin. Arrangements for programs and provision for local frequency modulation reception will be made with county medical societies. This is believed to be the first time that scientific medical material has been broadcast by a medical school through a state owned university radio station. The first program concerning the human back will probably be given in February.

## GENERAL

**Board of Ophthalmology.**—The American Board of Ophthalmology wishes to make known that it does not evaluate, approve or disapprove any ophthalmic residency as fulfilling the requirements for candidates for board examinations. Any candidate who qualifies for the board examination and completes the prerequisites as outlined in the syllabus will be accepted. A copy of the syllabus can be obtained from the secretary of the American Board of Ophthalmology, 56 Ivie Road, Cape Cottage, Maine.

**Southeastern Allergy Meeting.**—The annual meeting of the Southeastern Allergy Association will be held at the Washington-Duke Hotel, Durham, N. C., January 22-23. Dr. George E. Rockwell, Milford, Ohio, president of the American College of Allergists, and Dr. Walter Winkenwerder, Baltimore, president of the American Academy of Allergy, are to be guest speakers. A panel on "Infectious Asthmas," headed by Dr. Oscar Swineford Jr., Charlottesville, Va., and a panel on "Food Allergies," headed by Dr. Hal M. Davison, Atlanta, Ga., are on the program. For information address Dr. Katharine B. MacInnis, Secretary, 1515 Bull Street, Columbia, S. C.

**Posing as a Doctor.**—A man using the name of Paul Lambert is [illegible] posing as a doctor, according to the Bureau of [illegible] He is about 31 years old, 5 feet 9½ inches (176.5 cm.) tall, weighs 125 to 130 pounds (56.7 to 59 Kg.), has dark brown hair parted on left side, wears steel-rimmed glasses, has a cast in one eye and a small dark mustache. He has succeeded in obtaining sums of money to be invested in a South American business venture. He claims to be a resident or a native of Brazil and an undercover liaison officer between the United States and Brazil. Anyone knowing the whereabouts of this imposter should notify the Bureau of Police, Philadelphia 7.

**Conference on Medical Service.**—The National Conference on Medical Service will be held at the Palmer House, Chicago, February 6. The program is as follows:

Chris J. D. Zarafonetis, Ann Arbor, Mich., and George E. Wakerlin, Chicago, Legalized Medical Research.
Frank Calderone, New York, Progress of the World Health Organization.
Creighton Barker, New Haven, Conn., Progress of the World Medical Association.
Warren F. Draper, Washington, D. C., Medical Program of the United Mine Workers of America Welfare and Retirement Fund.
Mr. James D. Boyle, What's Happening in Washington This Week, followed by a discussion to be opened by Joseph S. Lawrence.
George N. Aagaard, Minneapolis, Minn., Charles W. Smith, Harrisburg, Pa., and Harold I. Goldman, Denver, Panel discussion: Postgraduate Education of the Doctor.
Wilbur Bailey, Los Angeles, Can Corporations Such as Hospitals Legally Engage in the Practice of Medicine?

The luncheon speaker will be Dr. George F. Lull, Secretary and General Manager, American Medical Association, Chicago.

**Annual Meeting of Society for Surgery of the Hand.**—The American Society for Surgery of the Hand will meet at Thorne Hall, Northwestern University, Chicago, January 21-22. Those speaking by invitation are Drs. Joseph L. Posch, Detroit, "Primary Nerve and Tendon Repair" and Frederick L. Liebolt, New York, "Arthroplasty for Ankylosis of the Metacarpophalangeal Joint." Other speakers will be:

Vinton E. Siler, Cincinnati, Tenorrhaphy.
R. Sterling Mueller, New York, Treatment of Severed Flexor Tendons in the Flexor Tendon Sheaths of the Fingers.
J. Edward Flynn, Boston, Acute Suppurative Tenosynovitis of the Hand.
George S. Phalen, Cleveland, Median Nerve Neuritis.
Lt. Col. Gilbert L. Hyroop, Phoenixville, Pa., Plastic Repair of the Cleft between the Thumb and Index Finger.
Lot D. Howard Jr., San Francisco, Thumb Web Contracture.
J. William Littler, New York, Adduction Contracture of the Thumb.
Julian M. Bruner, Des Moines, Ia., Dupuytren's Contracture.
William Metcalf, Hines, Ill., Skeletal Reconstruction in the Hand.
W. Brandon Macomber, Albany, N. Y., Relationship of Superficial and Deep Reconstructive Surgery of the Hand.
Thomas W. Stevenson, New York, Xanthoma of the Hands.
Sumner L. Koch, Michael L. Mason and Harvey S. Allen, Chicago, Presentation of Cases.

## PUERTO RICO

**Discuss Need for Medical School.**—For the first time in Puerto Rico, the need of a medical school for the island was discussed by experts in a round table at the School of Tropical Medicine in San Juan, December 6. At the annual convention of the Puerto Rico Medical Association five doctors and the chancellor of the University of Rio Piedras met with doctors from the United States, Cuba and the Dominican Republic. Dr. Herman Weiskotten, dean of the University of Syracuse Medical School, said that the minimum cost of a small school would be from $400,000 to $500,000 a year, to say nothing of the additional expense for the school hospital. Other speakers were Commissioner of Health Juan A. Pons, who favored early establishment of the school; Dr. Oscar Costa Mandry, who four years ago made for the university a survey of American institutions in connection with the possibility of establishing a medical school in Puerto Rico; Dr. Guillermo Arbona and Dr. Enrique Koppisch, who was also the participant to come out definitely against the school. Chancellor Jaime Benitez declared that the conditions described by Dr. Koppisch made the need for a medical school "only more pressing."

# Marriages

William Francis Maguire, Charleston, S. C., to Miss Dorothy Eileen Bennett, of Holly Hill, October 30.

Earle Sinclair McKey Jr., Valdosta, Ga., to Miss Martha Augusta Wiseman of Adel, October 23.

Joseph Cooper Collins to Miss Marjory Joan Hubbard, both of San Francisco, September 18.

Charles Harrison Wiygul to Miss Frances Allen Varner, both of Fairfield, Ala., October 30.

Max L. Salvater to Miss Laura Kraemer, both of Sacramento, Calif., October 9.

Kathleen Byers to Mr. William John Lindsey, both of Atlanta, September 10.

# Deaths

**William Augustus Evans,** Aberdeen, Miss., formerly health commissioner of Chicago, died on a plantation near Muldon, Miss., November 8, aged 83, of heart disease. Dr. Evans was born in Marion, Ala., Aug. 5, 1865. He received his medical degree from the Medical Department of Tulane University of Louisiana, New Orleans, in 1885, and later moved to Chicago, where from 1891 to 1895 he was demonstrator of pathology and from 1895 to 1908 professor at the College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois. In 1908 he joined the faculty of Northwestern University Medical School in Chicago, where at the time of his death he held the title of professor of public health emeritus. He was a member of the American Medical Association and in 1902 and in 1912 a member of the House of Delegates, a president of the Chicago Medical Society in 1902-1903, and of the American Public Health Association in 1916-1917. In 1907 he became health commissioner of Chicago, serving until 1911, when he resigned to become health editor of the *Chicago Daily Tribune*, where for twenty-three years he conducted the column on "How to Keep Well." He was a member of the board of medical advisors of the Illinois Department of Health, a member of the advisory committee of the Chicago Health Department and on the staffs of the Wesley Memorial, Cook County and Alexian Brothers hospitals in Chicago. He received LL.D. degrees from Tulane University in 1910 and the University of Mississippi in 1921 and a doctor of public health degree from the University of Michigan, Ann Arbor, in 1911. Dr. Evans presented his home town of Aberdeen with a library of some 15,000 volumes and 10,000 manuscripts as a memorial to the Evans family, which for generations lived in that section of the state. He also restored the old home of Jefferson Davis, "Beauvoir," in Biloxi, Miss., converting it into a public building now maintained by a Davis memorial association.

**William Stoutenborough Terriberry** ⊕ Medical Director, U. S. Public Health Service, retired, Old Lyme, Conn.; born in Paterson, N. J., July 3, 1871; Columbia University College of Physicians and Surgeons, New York, 1896; veteran of the Spanish-American War; a lieutenant colonel in the medical corps of the New York National Guard; served in the Mexican border campaign of 1916; served during World War I; entered the public health service as a senior surgeon in the reserve corps in 1919 and later was made assistant surgeon general; his assignments included acting as supervising officer for immigration along the Canadian border; commissioned medical director in the regular corps in 1930, served as director of Public Health Service District number 1, New York, and as medical officer in charge, U. S. Marine Hospital, Buffalo; retired from the service in 1937; received the Conspicuous Service Cross in 1922; at one time on the staff of the Bellevue Hospital in New York; died in the U. S. Coast Guard Academy Hospital, New London, October 13, aged 77, of arteriosclerotic heart disease.

**Voyle Musser James** ⊕ Los Angeles; born in Salt Lake City, Jan. 30, 1899; University and Bellevue Hospital Medical College, New York, 1924; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology, American College of Allergists and the Pacific Coast Oto-Ophthalmological Society; fellow of the American College of Surgeons; past president of the Hollywood Academy of Medicine; affiliated with the Children's, Cedars of Lebanon and the Presbyterian Hospital-Olmsted Memorial in Los Angeles and the Glendale (Calif.) Sanitarium and Hospital; died October 17, aged 49, of coronary disease.

**Charles Edward Futch** ⊕ Los Angeles; born in Cleveland, Jan. 23, 1898; University of Michigan Medical School, Ann Arbor, 1923; assistant professor of otolaryngology at the College of Medical Evangelists; specialist certified by the American Board of Otolaryngology; member of the Pacific Coast Oto-Ophthalmological Society and the Los Angeles Society of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons and the International College of Surgeons; served during World Wars I and II; on the staffs of St. Vincent's, Queen of Angels and White Memorial hospitals; died October 24, aged 50.

**Charles Vernon Crane** ⊕ Grand Rapids, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1904; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians and member of the American Heart Association, American Diabetes Association and National Gastroenterological Association; served during World War I; affiliated with Blodgett Memorial, St. Mary's and Butterworth hospitals; died October 10, aged 66, of coronary thrombosis.

**William Frederick Doolittle,** Cleveland; Western Reserve University Medical Department, Cleveland, 1898; died in Lakeside Hospital October 23, aged 76, of brain abscess.

**Eli Hamlin Dunn,** Kansas City, Mo.; Rush Medical College, Chicago, 1885; died September 30, aged 90, of senility.

**Walfred August Engstrom,** Huntington Park, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1944; member of the American Medical Association; certified by the National Board of Medical Examiners; interned at the Los Angeles County Hospital; affiliated with the Mission Hospital, Huntington Park, St. Francis Hospital, Lynwood and the Bell Mission Hospital in Bell; died in Los Angeles October 22, aged 40, of injuries received when struck by an automobile.

**Albert Wilford Goodale,** Orland, Ind.; University of Buffalo School of Medicine, 1907; died in Los Angeles September 10, aged 75.

**Harvey H. Hartley,** Goldendale, Wash.; University of Oregon Medical School, Portland, 1900; served as county health officer, postmaster and president of the chamber of commerce; drowned September 10, aged 77.

**John William Ottoway Henley,** Kansas City, Mo.; Meharry Medical College, Nashville, Tenn., 1919; died in San Diego, Calif., recently, aged 52, of cerebral thrombosis.

**Carl F. W. Lippe,** Newark, N. J.; University of Georgia Medical Department, Augusta, 1897; died recently, aged 78, of uremia and arteriosclerosis.

**Leon Dudley Long** ⊕ Seattle; the Hahnemann Medical College and Hospital, Chicago, 1907; affiliated with the Virginia Mason Hospital, where he died recently, aged 66, of myocardial infarction.

**William E. Morris,** Shelbyville, Ky.; Bellevue Hospital Medical College, New York, 1890; member of the American Medical Association; died in King's Daughters' Hospital September 27, aged 84, of carcinoma of the prostate.

**Adolph Jacob Osterman,** Mount Vernon, Wash.; Gross Medical College, Denver, 1896; member of the American Medical Association; served during World War I; died recently, aged 80, of metastatic carcinoma of the lungs.

**Rudolph Emanuel Pick** ⊕ New York; University and Bellevue Hospital Medical College, New York, 1903; consultant on the staffs of the Metropolitan and Flower and Fifth Avenue hospitals; died in the Nathan Littauer Hospital, Gloversville, September 21, aged 66, of fracture of the femur.

**John Irving Pinckney,** Providence, R. I.; University of Vermont College of Medicine, Burlington, 1906; member of the American Medical Association; for many years executive secretary of the Providence Tuberculosis League; formerly affiliated with the Michigan State Board of Health; at various times on the staffs of the Western Maine Sanatorium in Hebron, Westfield (Mass.) State Hospital and the Rhode Island Hospital; died in the Jane Brown Memorial Hospital, October 16, aged 69, of coronary thrombosis.

**Julius Thomas Pitts,** Newborn, Ga.; Atlanta Medical College, 1895; member of the American Medical Association; retired minister; died September 21, aged 76.

**Ernest Rose,** San Marcos, Texas; University of Oklahoma School of Medicine, Oklahoma City, 1936; member of the American Medical Association; served during World War II; died recently in Brooke General Hospital, Fort Sam Houston, aged 49, following an operation for brain tumor.

**William Frederic Singer** ⊕ Pueblo, Colo.; Syracuse University College of Medicine, 1896; on the staffs of Parkview and St. Mary's hospitals; died October 25, aged 78.

**James C. Spell,** Titusville, Fla.; University of Louisville (Ky.) Medical Department, 1906; also a pharmacist; died in the Eugene Wuesthoff Memorial Hospital, Rockledge, September 16, aged 73, of heart disease.

**Lynn D. Stewart** ⊕ Payson, Utah; Northwestern University Medical School, Chicago, 1911; at one time mayor; served during World War I; on the staff of Payson City Hospital; died September 22, aged 61, of coronary thrombosis.

**Benjamin Mortimore Stout** ⊕ Morgantown, W. Va.; Jefferson Medical College of Philadelphia, 1921; past president of the Monongalia County Medical Society; on the staff of Monongalia General Hospital; died September 27, aged 56, of coronary occlusion.

**Ernest Clifford White,** Chicago; Dunham Medical College, Chicago, 1902; served during World War I; medical director of Alexian Brothers Hospital, where he died October 14, aged 69, of coronary thrombosis.

# Foreign Letters

## LONDON

*(From Our Regular Correspondent)*

Nov. 20, 1948.

### The Working of the National Health Service

The working of the National Health Service brings to light many drawbacks which might have been expected when the practice of medicine became state controlled, i. e., socialized. The glittering promises of large incomes is found to depend on a doctor's having a large list, up to 4,000 possible patients. In times of stress he is overworked and cannot properly investigate his serious cases. Much of his time is taken up with the clerical work of signing certificates and the other innumerable forms which bureaucracy has inflicted on him. Doctors practicing in sparsely populated areas or in rich suburban areas have suffered large losses of income. The number of inhabitants can give them only a limited list of National Health patients, whose capitation fees are only a small fraction of the sums previously paid for private attendance. In some cases the loss of income is stated to be as much as 50 per cent. No matter how much illness a well to do patient has in the year it is covered by the capitation fee of about $3.50.

Such abuses of the service as the following occur. Three doctors have written to the *British Medical Journal* stating that patients who on arrival found a queue in front of them at the office were unwilling to wait, returned home and telephoned for a visit. In another case a patient telephoned that he had a high temperature in order to obtain a visit, although his temperature was normal. In still another case a woman sent a message after 1 p. m. for a visit. But she was so well that three visits had to be paid to her house before she was found at home.

The proposal has been made that the maximum of 4,000 patients on a doctor's list should be reduced to 2,500 and the capitation fee increased to $8. Already the cost of dental treatment has proved to be more than double the estimate. The Minister of Health stated that he wanted to take money out of the doctor-patient relation. That is evidently going to be an expensive matter for the taxpayer. Similarly his colleagues state that they want to take the profit motive out of production. In the industries taken over by the state they certainly have accomplished this. No profits, but losses—at the expense of the taxpayer—have been made. Similarly "taking money out of the doctor-patient relation" is going to be an expensive matter for the state—much more expensive than was calculated. The medical profession does not reap a corresponding benefit, because of the enormous waste involved, waste of time and material, as shown in a previous letter. A crowning bit of extravagance may be mentioned. Foreigners who come to this country are to be entitled to free medical attendance at the public expense for the first two months.

### Organized Opposition: Lord Horder's Criticisms

The opposition of a section of the British Medical Association, led by Lord Horder, to acceptance of the Health Service has been reported in previous letters to The Journal. A new organization, called the Fellowship for Freedom in Medicine, was formed at a meeting in London which was attended by 673 doctors from all parts of the country. Lord Horder was elected chairman. In his opening speech he outlined the collapse of the British Medical Association's resistance to the Act. "We are no longer experts," he said. "We sit and sign forms. With no time to diagnose diseases we pass out patients to other persons and to institutions, knowing full well that they cannot dispense the health benefits which may or may not be needed." He suggested that a guild be formed. The old city guilds stood for a high standard in regard to the craft they pursued and took powers to preserve it in the public interest as well as in their own.

The meeting passed three resolutions covering its aims. The first dealing with its relations to existing bodies pointed out that it was in no way opposed to other organizations. The second affirmed its determination to maintain the highest possible standards of medicine in the future. The third was to the effect that the committee should consider ways and means in which freedom in medical matters could be preserved in the profession. Ten members of an executive committee were elected. Another ten will be chosen with the object of having a wide representation over the country as possible. So far, 1,750 letters have been received from members of the profession dissatisfied with the national health scheme, though no general appeal to the profession has been made. Letters are coming in at the rate of 30 a day.

### Protest Against Soviet Tyranny Over Science

Sir Henry Dale, F.R.S., the eminent pharmacologist, has resigned his honorary membership in the Academy of Sciences of the U.S.S.R. In his letter to the President he points out that in 1942, the year in which he was elected to the Academy, the Royal Society of London elected Nicholas Vavilov to be one of its fifty foreign members. As first director of the Lenin Academy of Genetics, Vavilov was reputed to be of great assistance to agriculture in the Soviet Union. But for some unknown reason, possibly political, he fell out of favor with those who followed Lenin. Not till 1945 did the Royal Society discover that he had been dismissed and had disappeared with a number of co-workers in genetics at some unknown date between 1941 and 1943. Repeated inquiries addressed to the Russian Academy by the Royal Society asking only the date and place of his death received no reply. It is now clear what happened. Vavilov has been replaced by T. D. Lysenko, the advocate of a doctrine of evolution which, in effect, denies all progress since Lamarck's speculations appeared early in the nineteenth century. This is not the result of an honest and open conflict of scientific opinions. Lysenko's own statements show that his dogma has been established and enforced by the Central Committee of the Communist Party as conforming to the political philosophy of Marx and Lenin. Decrees of the Academy show only too clearly the political tyranny which exists. The distinguished neurophysiologist L. Orbeli, of the school of the great Pavlov, was dismissed from the secretaryship of the Department of Biological Sciences because he had failed to anticipate the decrees restricting all teaching in genetics to the politically imposed orthodoxy. Since Galileo many attempts have been made to suppress scientific truth. None have been a success; the last was Hitler's. Dale concludes that he cannot continue an association which might appear to condone such tyranny.

### Dr. J. H. Sequeira

Dr. James H. Sequeira, a leading dermatologist, died in Kenya at the age of 83 years. After qualifying he decided to become a dermatologist and visited Vienna and Copenhagen for postgraduate study. In the latter capital he worked under Finsen, who was engaged in his pioneer researches on light baths in the treatment of cutaneous tuberculosis. In 1901 Sequeira translated Finsen's book on phototherapy and returned to the London Hospital, his medical school, to carry out the new methods in the recently established light department, the first in this country. In the same year he was the first in this country to report on the treatment of cancer of the skin by roentgen rays and radium. He published his treatise on "Diseases of the Skin" in 1911. It reached a fourth edition in 1927 and was translated into Spanish in 1926. A prolific writer, he for many years edited the *British Journal of Dermatology & Syphilis*.

On retiring from the active staff of the London Hospital in 1927 he went to Kenya, where he was president of the Kenya Branch of the British Medical Association and editor of the *East African Medical Journal*. His African experiences were embodied in his Chadwick lecture in 1932, on "The Educational Aspects of Public Health in the Tropics." During the first great war he was consultant in dermatology to the military hospitals of London. He was president of the Dermatological Section of the Royal Society of Medicine (1925 to 1927) and corresponding member of the French and Danish dermatological societies.

## GREECE

*(From a Special Correspondent)*

Athens, Dec. 2, 1948.

### Public Health Program in Greece

The Economic Cooperation Administration, recognizing the necessity of improving standards of public health and medical care as essential to economic recovery, has embarked on a huge hospital, health center and sanitation program and plans a reorganization of the health services of Greece. Funds have also been made available for sending selected Greeks to the United States for training and to send specialists to Greece from the United States and other countries participating in the Economic Cooperation Administration.

The Public Health Division of the Economic Cooperation Administration Mission, under the direction of Dr. O. F. Hedley of Richmond, Va., a medical director of the U. S. Public Health Service, is composed for the most part of commissioned officers of the service or specialists recruited by the service for the Economic Cooperation Administration. The Public Health Division consists of five medical officers, three sanitary engineers, three public health nurses, one hospital administrator, one hospital architect, two medical supply experts and one civil engineer. Altogether the division includes nineteen Americans, one British supply expert and twenty-four Greeks, several of whom are in professional or subprofessional categories.

The medical officers in addition to Dr. Hedley are Senior Surgeon Leslie W. Knott of San Francisco; Senior Surgeon (R) Paul A. Lindquist of Kansas City, Kan.; Surgeon (R) Paul F. Holland of Alexandria, Va., and Surgeon (R) Fred W. Love of Delray Beach, Fla., all of whom are assigned to the Greek Mission by the Public Health Service.

### Construction of Hospital and Health Facilities

Approval has been granted by the Economic Cooperation Administration in Paris and Washington and by the Government of Greece for the construction of hospital and health facilities during the current fiscal year in the amount of $10,234,000 in foreign exchange and drachmae equivalents and the importation of $1,450,000 worth of sanitation supplies and equipment. Over $70,000 has been earmarked for training purposes. In addition, the Economic Cooperation Administration has allocated $2,000,000 in local currency to meet the local construction costs of the hospital and health center program of the Greek War Relief, which amounts to over $10,000,000. The Public Health Division also has supervision over the importation of $2,950,000 worth of medical and sanitation supplies for the Greek Ministry of Hygiene and furnishes technical assistance in the importation of $6,000,000 worth of commodities for the trade. An amount of $300,000 has been made available for medical and sanitation supplies for refugee relief.

### Nursing School

Project agreements in the amount of $7,400,000 have been signed and construction has been started on a dormitory for the Athens Red Cross School of Nursing and two medical and sanitation supply warehouses. The current year's program includes the construction of a school of nursing in Salonica, a dormitory for nurses in Athens, two medical and sanitation supply warehouses, the completion of the Athens Maternity Hospital started before the war and a dormitory for midwives, repairs and equipment for the School of Hygiene and a modest amount for the University of Athens and Salonica medical schools, the completion of six general hospitals and the completion of four public health centers. Most of the buildings which will be completed were begun or projected before the war. In addition a number of buildings will be repaired or completed from the special drachmae accounts of the mission or funds in the Greek budget; these will require no dollar expenditures.

### Safe Water Supplies

The sanitation program, which amounts to $1,450,000, will consist primarily in furnishing safe water supplies to a number of small communities. Water and sewerage facilities for the larger towns are included in the public works program. The success of this program depends largely on obtaining pipe, which seems to be universally in short supply.

One of the greatest needs in Greece is for more trained nurses. On the basis of the latest figures of the Ministry of Hygiene, there are now 542 graduate nurses practicing their profession in Greece. This is approximately a ratio of 1 nurse to 14,000 population, as compared with 1 to 500 in the United States and United Kingdom. The objective of the mission, with the cooperation of the Greek War Relief Association, is to provide 300 graduates annually. Since this cannot be attained immediately several one year schools will be provided, and an inservice training program for the practical nurses now on duty has been begun. New technical motion pictures from the United States play an important role in the nurse-training program and are an integral part of the program.

### Medical Education

The Medical Schools of the Universities of Athens and Salonica have suffered extreme deterioration because of the war. Many of these buildings have been requisitioned for military hospitals. Furthermore, the number of students has increased beyond all possible needs of the country. Under the four year plan it is hoped to refurbish the building and reequip the laboratories and clinics, at least partially, and to reduce the "academic inflation." The School of Hygiene, established by the Rockefeller Foundation for the training of health officers, will also be repaired and furnished substantial equipment.

### Tuberculosis

Tuberculosis is the outstanding health problem affecting Greece at the present time. The mortality from tuberculosis is approximately 250 per 100,000 population, and there are less than 5,000 sanatorium beds. Bone and joint tuberculosis is especially common. The mission is assisting the International Childrens' Emergency Fund and the Scandinavian Red Cross Affiliates in a BCG program which should bring ten teams to Greece in early 1949. Under the four year plan it is hoped to provide about 9,000 additional sanatorium beds.

# Correspondence

## PENICILLIN THERAPY

*To the Editor:*—The article "Acute Exfoliative Dermatitis and Death Following Penicillin Therapy," by Drs. J. Rabinovitch and M. C. Snitkoff (THE JOURNAL, October 16, pp. 496-498) implicated penicillin as the cause of death in the case reported, despite failure to perform an autopsy. A white woman aged 72 was operated on for a "gangrenous and perforated appendix." The peritoneal cavity was found to contain "free turbid fluid" which yielded a nonhemolytic streptococcus. Penicillin was administered for eleven days. Eighteen days after penicillin was begun, pruritus was noted, then a maculopapular rash, followed by fever. She was given several drugs, but the course was progressively downhill. The skin began to exfoliate, large bullae were formed, ulcerations of the mouth developed and acute conjunctivitis was noted. Death followed thirteen days after the first appearance of the eruption.

I should like to report a case similar in many respects. Until a necropsy, this was considered to be a drug eruption with penicillin in the list of offenders. The autopsy, however, revealed an extensive retroappendical abscess. This patient was seen at the University Hospital in Minneapolis in May 1947. A white man, aged 44, had a history of constant pain in the right side of the chest, of five weeks' duration. Three weeks prior to admission he had received penicillin, streptomycin and sulfaguanidine. One week prior to admission an erythematous rash had developed, which became bullous over the face and trunk. The skin became loose and was separated in sheets. The Nikolsky sign was positive. On admission the temperature was 104 F., pulse rate 142, blood pressure 110 systolic and 80 diastolic. In addition to the eruption, there was a purulent urethral discharge and a purulent conjunctivitis. The mouth revealed superficial ulceration. The hemoglobin was 11.4 Gm., leukocyte count 9,400, with 80 per cent polymorphonuclear cells. The sedimentation rate was 63 mm. per hour, by the Westergren method. The tentative diagnosis was drug eruption (bullous erythema multiforme of the Stevens-Johnson type). Blood transfusions and other supportive measures were employed, but the patient became comatose and died a few days after admission. Postmortem examination revealed, in addition to the dermatologic changes, silicosis and an extensive retroappendical abscess. The death could not therefore be attributed to penicillin; the evidence for penicillin as the cause of death in Drs. Rabinovitch and Snitkoff's case seems to be questionable.

JOHN R. HASERICK, M.D.,
Dermatology Department, Cleveland Clinic.

## JAPANESE MEDICAL ASSOCIATION

*To the Editor:*—I wish to acknowledge with gratitude the receipt of a valued book on the history of the American Medical Association. I assure you that the volume will be a fine addition to our library, to which all our members have free access.

Not long ago your Association kindly sent to us a group of medical experts with Dr. Sensenich as its head. These gentlemen offered much useful advice and many suggestions to our medical profession in general and to our officers in particular. We were all much benefited by their association with us even though the time was limited. As President of the Medical Association of Japan I wish to extend to you and to all of your colleagues my sincerest thanks for your good will. May our mutual friendship continue through many years to come, and may our good will keep us encouraged in our humble effort to realize our goal for better medical care for our people.

AKIRA TAKAHASHI, M.D.,
President, Medical Association of Japan.

# Bureau of Legal Medicine and Legislation

## MEDICOLEGAL ABSTRACTS

**Malpractice: Volkmann's Paralysis Following Application of Tight Bandage.**—The plaintiff sued for damages alleged to have resulted from the negligent conduct of the defendant physician. From a judgment in favor of the physician, the plaintiff appealed to the court of civil appeals of Texas, Galveston.

The plaintiff, a 4 year old boy, while playing piggy-back with his sister, fell about 2 feet to the floor and fractured his left arm just above the elbow. His mother took him to a hospital and was referred to the defendant physician who x-rayed the arm and reduced the fracture. The defendant then bound the arm in a "fully flexed" position with a tight bandage, that is, the left arm was bent so that the forearm was brought as far as it could go against the upper arm and then taped into a cone-shaped position. About 10:15 p. m. the mother discovered that the child's hand was blue and ice cold. She notified the defendant and asked whether or not the bandage could be too tight. The defendant said that the hand was all right and not to worry about it but to bring the boy in for examination the next day. The next day when the parents took the child to the defendant's office, the mother again asked the defendant about the hand being so cold and blue, and the defendant said that he thought the bandage was too tight and "snipped it a little on both sides." About two weeks later the plaintiff's mother asked the defendant why the boy was not able to move his fingers and why his hand looked sort of blue, but was told that there was nothing wrong with the hand. On August 21, over a month after the accident, the mother again called the defendant's attention to the boy's fingers. The defendant then asked her whether the boy had not been able to move his fingers and the mother told him "no" and that she thought the defendant knew. The defendant then said that it looked as if there had been some sort of nerve injury, and he called in a bone specialist. At the trial the defendant was asked, among other things, "Q. If Mrs. Bowles or Mr. Bowles had telephoned you shortly after 10:15 on the night that you set the arm, and reported to you that the hand was ice cold and blue, what would you have done? A. If I had understood that, I would have asked to see the child. I would either come over or had them meet me at the hospital, because there would be no excuse for not seeing a case that had an ice cold hand." Under the state of the pleadings, said the court, the defendant cannot be heard to urge that the plaintiff's mother did not tell him over the telephone what she said she had and it is perfectly obvious that what she told him was very simple and clear and easy to understand. For the purposes of this appeal, therefore, it must be considered that the defendant understood that the child had an ice cold hand and he did not do what he said there was no excuse for his not doing, namely, seeing the child's hand at the time he was given such information. Thus, said the court, the defendant himself furnished the expert medical testimony from which the jury could have inferred that he was guilty of negligence.

A physician's liability, said the court, is measured by the fact that he "merely engages that he has that reasonable degree of learning and skill which is possessed by others of his profession in the same locality, or by the 'average physician under the same or similar circumstances,' and that he will exercise that skill and learning with reasonable care and diligence. . . . Although required to exercise his best judgment in the circumstances, and to look for natural and probable results, if he has exercised ordinary care and diligence he is not responsible for a mistake in judgment nor for the occurrence of unexpected results which reasonably could not have been anticipated." Jurors, the court continued, in the exercise of their mere lay knowledge, cannot determine whether a physician has complied with the standard referred to. In other words, it is incumbent on the plaintiff to show by expert evidence that the defendant's negligence was a proximate cause of the plaintiff's injury, that is, that the negligent manner of treatment caused the subsequent injury to the plaintiff's hand and arm. But we have not been able to find any medical or expert evidence which would have warranted a finding by the jury that any negligence on the part of the defendant was a proximate cause of the paralysis which followed the fracture. The medical evidence bearing on the point of the proximate cause of the contracture or paralysis was that before the fracture was reduced there was no radial pulse in the boy's fractured arm, but after the fracture was reduced the pulse became palpable or noticeable. It was on this evidence that the bone specialist gave as his positive opinion that the injury occurred at the time of the fracture and as a result thereof and before it was reduced, because the circulation was stopped or cut off during the period that the radial pulse could not be found but after the fracture was reduced the circulation was restored. The medical testimony disclosed that a Volkmann's contracture may be caused by traumatic arterial spasms, thrombosis, embolism, perforation or rupture of a blood vessel and that it could have resulted regardless of any treatment given and the opinion of the bone specialist as stated previously was that it probably resulted in this instance from the original injury. There was no medical evidence which would have supported an inference by the jury that, assuming the defendant negligently permitted the arm to remain bandaged too tightly and thereby cut off the circulation, the defendant's conduct was the probable cause of the paralysis. In other words, the court concluded, there was no medical expert evidence admitted in this case to the effect that the paralysis was probably caused by the bandage applied by the defendant. The jury cannot draw medical conclusions in the absence of expert evidence. In the absence of any showing that the defendant's negligence was the cause of the paralysis in the plaintiff's arm, therefore, the court of appeals affirmed the judgment of the trial court in favor of the defendant physician.—*Bowles v. Bourdon, 213 S. W. (2d) 713 (Texas, 1948).*

**Malpractice: Expert Testimony as to Proper Fit of Denture.**—The plaintiff dentist filed suit to recover the balance of a fee due him for services in connection with the preparation of upper and lower dentures for the defendant. From a judgment in favor of the defendant, the plaintiff appealed to the Appellate Court of Illinois, Second District.

The plaintiff, a duly licensed dentist who had practiced his profession for more than twenty years, was engaged by the defendant to make an upper and lower set of dentures. The charge for these services was $200, the fairness and reasonableness of which was not disputed. After reducing the amount due to $139 the defendant refused to pay any more.

The plaintiff first contended that the defendant should not have been permitted to testify that the teeth did not fit. The evidence showed that the first lower dentures were unsatisfactory. The plaintiff made another. The defendant said that these also did not fit; that they hurt her and that she was embarrassed when eating and had to leave the table; that the teeth jumped out when she sneezed; that she took them out whenever they hurt her and did not wear them all the time. The defendant's husband testified that she slobbered at the table. Finally, at the close of her testimony, she was asked: "State whether or not these teeth did fit you or not." Over objection of the plaintiff, she was permitted to answer: "They did not fit me." The plaintiff testified that he used the most modern method and exercised the same skill ordinarily used by other dentists in making teeth; that he examined the defendant's mouth before he took the impressions for the teeth and afterward saw the teeth in her mouth and in his opinion they fit her; that when a person sneezes any false teeth plate may come out; that when a person using false teeth sneezes, the plate is loosened and may drop out; that this is no indication that teeth do not properly fit and are not properly made; that both the upper and lower teeth that he made for the defendant were properly made and properly fit her; that persons first using false teeth have some soreness as a rule; that they usually expect to make some adjustment after the teeth are first fitted to the patient's mouth, and the patient having pain does not indicate that the teeth are not properly made and do not properly fit. A licensed dentist who was called as an expert witness on behalf of the plaintiff testified that it is usual for a person who has never worn false teeth before to complain that they hurt from time to time; that in his opinion no part of the body is as tender as the tissues of the mouth; that just a little rub will cause a burn or sore mouth and a dentist has to make adjustments; that the mouth is one of the most tender parts of the body and reacts more to any kind of pressure. He also testified that the teeth in question were showed to him and he stated that the teeth looked well made, that they were in alinement; that sometimes it takes patients years to get used to false teeth and others a very short time.

In considering the plaintiff's contention, the appellate court referred to a Wisconsin decision in which the facts were very similar to those of the present case. In that case the Supreme Court of Wisconsin said: "If the plaintiff performed the dental services for the defendant and did the same in good workmanlike manner in accordance with the recognized and established practice of those in the same profession in his locality, he became entitled to the reasonable value of his services. We must hold in this case that the issue here presented was one on which expert rather than lay evidence was necessary. . . . The testimony of those familiar with that kind of work and services was all one way and to the effect that it was in accordance with the recognized standard of skill in that locality."

It will be noted, said the appellate court, that in the Wisconsin case it was held that whether the teeth fit was for expert testimony and not for the defendant alone to say that they did not fit. The defendant in the present case was allowed without objection to state that the teeth hurt her and were not satisfactory, but we think that whether they actually fit or not was a question for expert testimony, and the jury should decide whether the teeth did fit according to dental standards. The defendant offered no expert testimony on the question. The appellate court accordingly concluded that the trial court erred in permitting the defendant to state that the teeth did not fit her.

The plaintiff also contended that an improper instruction had been given to the jury. This instruction read: "The Court instructs the jury that where the buyer purchases from the seller goods to be manufactured by the seller, and it appears that the seller knows the particular purpose for which the goods are required, and where it appears that the buyer relied on the seller's skill or judgment, then there is an implied warranty on the part of the seller that the goods to be manufactured by the seller will be reasonably fit for such purpose." The point made by the plaintiff is that the sale of dentures by a practicing dentist is not the sale of tangible personal property. This question was discussed by the Supreme Court of Illinois in a case in which the question arose as to whether or not the retailer's occupation tax act applied to optometrists and the furnishing of tangible personal property such as eyeglasses to a purchaser. In that case the Supreme Court said, "If it becomes necessary for a physician to furnish medicine or surgical dressings in effecting a cure, he certainly does not thereby come within the designation of those engaged in a calling which would result in the imposition of a retail tax. The same reasoning applies to dentists even though that calling requires the furnishing of certain inlays, fills, crowns or even false teeth, if necessary to a completion of the dental service." Accordingly the appellate court concluded that the plaintiff was not engaged in selling false teeth to the defendant but that his charges were for his skill and knowledge for his personal work in the examination and making of the dentures in question. The instruction treating him as a seller of tangible personal property was therefor improperly given.

Because of errors in instruction and in the admission of evidence, the judgment in favor of the defendant was reversed. *Gunter v. Cascio, 81 N.E. (2d) 766 (Ill., 1948).*

# Council on Medical Education and Hospitals

## NEW HOSPITALS REGISTERED

The following hospitals were registered by the Council on Medical Education and Hospitals of the American Medical Association at its meeting in St. Louis Nov. 29, 1948:

Gunnison Community Hospital, Gunnison, Colo.
Escambia General Hospital, Pensacola, Fla.
Meriwether Hospital, Plant City, Fla.
Wall Hospital, Blakely, Ga.
Matthews Hospital, Dallas, Ga.
State Sanatorium, Hillcrest Division, Topeka, Kansas
Veterans Admin. Hospital, Fort Thomas, Ky.
*Mount Mary Hospital, Hazard, Ky.*
Ritchie Hospital, Cascade, Md.
Santa Maria Hospital, Cambridge, Mass.
Lynn Hospital, Detroit
Michigan Memorial Hospital, Detroit
Community Hospital, Corinth, Miss.
Memorial Hospital, Harrisonville, Mo.
Student Health Center, Lincoln, Neb.
Salvation Army Home and Hospital, Buffalo
Graylyn, Bowman Gray School of Medicine, Winston-Salem, N. C.
Cochrane Hospital, Dayton, Ohio
Cowart-Sisler Clinic-Hospital, Bristow, Okla.
Franklin Clinic Hospital, Elizabethton, Tenn.
*East Tennessee Baptist Hospital, Knoxville, Tenn.*
Cleveland Hospital, Cleveland, Texas
St. Elizabeth's Hospital, Houston, Texas
Hardy-Hancock Hospital, Jasper, Texas
Seale Clinic and Hospital, Jasper, Texas
Bayview General Hospital, Palacios, Texas
Odom Dryden Clinic Hospital, Memphis, Texas
Green Hospital and Clinic, Muleshoe, Texas
Shamrock General Hospital, Shamrock, Texas
McConnell Hospital and Clinic, Sulphur Springs, Texas
Tahoka Clinic and Hospital, Tahoka, Texas
Circle Terrace Hospital, Alexandria, Va.
Lake Chelan Community Hospital, Chelan, Wash.

# Medical Examinations and Licensure

## COMING EXAMINATIONS AND MEETINGS

### NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I & II.* Various Centers, Feb., June and Sept. 1949. *Part II.* April 1949. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2, Pa.

### EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology, Inc.: *Written.* July 15. Various locations. Final date for filing application is April 15. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Avenue, New York 27.

American Board of Dermatology and Syphilology: *Written.* Various Centers, Feb. 10. *Oral.* New York City, April 1-4. Sec., Dr. George M. Lewis, 66 East 66th Street, New York 21.

American Board of Internal Medicine: *Oral.* San Francisco, Feb. 8-10, 1949. New York City, March 23-25. Philadelphia, June 1-3. *Written.* Oct. 17, 1949. Final date for filing application is May 1. Asst. Sec.-Treas., Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* Chicago, June 1949. Final date for filing application is Jan. 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

American Board of Obstetrics and Gynecology, Inc.: *Oral.* Chicago, May 8-14. Final date for filing application is April 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

American Board of Ophthalmology: *Written.* Jan. 14. *Oral.* San Francisco, March 21-24; New York, June 11-15; St. Louis, Oct. 15-19; Boston, Dec. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

American Board of Orthopedic Surgery: *Part I.* Various Centers, April and May. Sec., Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

American Board of Otolaryngology: New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

American Board of Pathology: Boston, April. Final date for filing application is March 1. Sec., Dr. Robert A. Moore, 507 S. Euclid Ave., St. Louis 10, Mo.

American Board of Pediatrics: *Oral.* St. Louis, Feb. 18-20. Baltimore, May 7-9. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

American Board of Physical Medicine: Atlantic City, June 4-5. Final date for filing application is March 15. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

American Board of Plastic Surgery: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

American Board of Psychiatry and Neurology: *Oral.* May. Final date for filing application is Feb. 15. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written.* Various Centers, March 1949. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

American Board of Urology: Feb. 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

### BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

Alaska:* Juneau, March 1. Sec.-Treas., Dr. W. M. Whitehead, Box 140, Juneau.

Arkansas:* Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 2-3. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

Connecticut:* Hartford, March 8-9. Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

Delaware: *Examination.* Dover, Jan. 11-13. *Endorsement.* Jan. 20. Sec., Dr. J. S. McDaniel, 229 S. State St., Dover.

Georgia: *Examination.* June, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Guam: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam, % F.P.O. San Francisco, Calif.

Hawaii: *Examination.* Honolulu, Jan. 10-13. Sec., Dr. S. E. Doolittle, 881 S. Hotel St., Honolulu 53.

Idaho: Boise, Jan. 10-12. Dir., Bureau of Occupational Licenses, Miss Estella S. Mulliner, State House, Boise.

Illinois: Chicago, Jan. 11-13. Superintendent of Registration, Mr. Fred W. Ruegg, State House, Springfield.

Indiana: *Examination.* Indianapolis, June. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

Maine: Portland, March 8-9. Sec., Dr. Adam P. Leighton, 192 State Street, Portland.

Massachusetts: *Examination.* Boston, March 8-11. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

Minnesota:* Minneapolis, Jan. 18-20. Sec., Dr. J. F. DuBois, 230 Lowry Medical Arts Building, St. Paul.

Missouri: Kansas City, Jan. 24-26. Sec., Mr. John A. Hailey, State Capitol Bldg., Box 4, Jefferson City.

Montana: Helena, April 4-6. Sec., Dr. O. G. Klein, First National Bank Building, Helena.

Nebraska:* *Examination.* Omaha, June. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

Nevada: Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

New Hampshire: Concord, March 10. Sec., Board of Registration in Medicine, Dr. John S. Wheeler, 107 State House, Concord.

New Jersey: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

New Mexico: Santa Fe, April 11-12. Sec., Dr. V. E. Berchtold, 141 Palace Ave., Santa Fe.

New York: *Examination.* Various Centers, Feb. 1-4. Sec., Dr. J. L. Lochner, Jr., 23 S. Pearl St., Education Bldg., Albany.

North Carolina: *Endorsement.* Raleigh, Jan. 17. Sec., Dr. Ivan M. Procter, 226 Hillsboro St., Raleigh.

Ohio: *Endorsement.* Columbus, Jan. 25 and April 5. *Written.* Columbus, June. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Pennsylvania: *Examination.* Philadelphia, Jan. 1949. Act. Sec., Mrs. M. G. Steiner, 351 Education Bldg., Harrisburg.

Puerto Rico: *Examination.* Santurce, March 1. Sec., Mr. Luis Cueto Coll, Box 3717, Santurce.

South Dakota:* Pierre, Jan. 18-19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

Texas: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

Utah: *Examination.* Salt Lake City, July. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

Vermont: *Examination.* Burlington, Feb. 3-5. Sec., Dr. F. J. Lawliss, Richford.

Washington:* Seattle, Jan. 17-19. Sec., Dept of Licenses, Miss Virginia Wotherspoon, Olympia.

Wisconsin:* Madison, Jan. 11-13, 1949. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls, Wis.

Wyoming: *Examination.* Cheyenne, Feb. 7. Sec., Dr. Franklin D. Yoder, Cheyenne.

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* Basic Science Certificate required.

### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: Juneau, Feb. 21-26. Sec.-Treas., Dr. C. Earl Albrecht, Box 1931, Juneau.

Colorado: *Examination.* Denver, Mar. 2-3. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

Connecticut: New Haven, Feb. 12. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

District of Columbia: *Examination.* Washington, April 18-19. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., East, Washington.

Florida: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

Iowa: *Examination.* Des Moines, Jan. 11. Sec., Dr. Ben H. Peterson, Coe College, Cedar Rapids.

Michigan: *Examination.* Ann Arbor & Detroit, Jan. 14-15. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing.

Minnesota: *Examination.* April, June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

Oklahoma: Spring of 1949. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Rhode Island: *Examination.* Providence, Feb. 9. Chief, Mr. Thomas B. Casey, 366 State Office Building, Providence.

South Dakota: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.

Washington: Seattle, Jan. 12-13. Sec., Dept. of Licenses, Miss Virginia Wotherspoon, Olympia.

Wisconsin: Madison, April 2., Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College, Ripon.

# Current Medical Literature

## AMERICAN

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Titles marked with an asterisk (*) are abstracted

### American J. Digestive Diseases, Fort Wayne, Ind.

**15:**253-288 (Aug.) 1948

Critique on Vagotomy, Part I. Historical and Experimental. J A. Schilling, Alexandra Feldmahn and W. J M Scott. p. 253.
Dynamics of Muscle Tonus and Its Relationship to Circulatory Failure: Part III, "New Approach to Treatment of Hypertension and Circulatory Failure by Use of Iron Salt of Adenylic Nucleotide." S. L. Ruskin.—p. 261.
Effect of Tripelennamine Hydrochloride (Pyribenzamine) on Gastric Acidity of Patients with Peptic Ulcer S A Hartman and D. M. Moore.—p. 271.
Vitamins and Hormones in Nutrition. IV. Gastro Intestinal Disease and Reduced Dietary Intake. B. F. Steve —p. 275.

### American Journal of Diseases of Children, Chicago

**75:**265-492 (March) 1948

Plasma Protein Studies on Normal Newborn and Premature Infants. I. Plasma Protein Values for Normal Full Term and Normal Premature Infants; II. Use of Concentrated Normal Human Serum Albumin in Treatment of Premature Infants. Lucy-Gale McMurray, J. H. Roe and L. K. Sweet.—p. 265.
Lengths of Femur and Tibia: Norms Derived from Orthoroentgenograms of Children from Five Years of Age Until Epiphysial Closure. Margaret Anderson and W. T. Green.—p. 279
*Use of Continuous Caudal Analgesia for Control of Hypertension in Acute Nephritis. J. G. Hughes, G. S. Lovejoy, H. D. Lynn and R. A. Hingson.—p. 291.
Semi-Self-Demand Feeding Schedule for Prematurely Born Infants. K. Glaser.—p. 309.
*Congenital Diabetes Insipidus Resistant to Treatment with Pitressin. J. Dancis, J. R. Birmingham and S. H. Leslie.- p. 316.
Individual Differences in Physical Changes Associated with Adolescence in Girls. E. L. Reynolds and Janet V. Wines.- p 329.
*Salmonella Meningitis: Report of 3 Cases and Review of 144 Cases from Literature. L. L. Henderson. p.—351.
*Systemic Aleukemic Reticuloendotheliosis (Letterer-Siwe Disease). C. Varga, M. N. Richter and A. G. DeSanctis.—p. 376.
Evaluation of Certain Preparations for Care of Skin of Newborn Infants. M. A. Perlstein.—p. 385.

**Caudal Analgesia for Hypertension in Acute Nephritis.**—Hughes and his associates observed 2 children with acute nephritis associated with extreme hypertension and cardiac failure who failed to respond satisfactorily to administration of magnesium sulfate and other measures. Since continuous caudal analgesia had been used successfully in the reduction of extreme hypertension of obstetric patients with eclampsia, they decided to employ this method in the 2 children. Caudal analgesia was used in the treatment of 2 additional patients with acute nephritis, 1 of whom was an adult. The 3 children were in coma. Two of them had generalized convulsions and 2 uremia. The uremic children had rapidly progressive anemia. Of the 4 patients, 2 had anuria and 1 almost complete anuria. The first child responded with prompt reduction of hypertension, almost immediate recovery from coma, reestablishment of cardiac compensation and a subsequent uneventful recovery. The second child had almost complete anuria, uremia, rapidly progressive anemia, extreme hypertension, cardiac failure and generalized convulsions. She responded to continuous caudal analgesia with a prompt reduction of hypertension, but the effect could be maintained for only an hour. She died. The third patient, a diabetic adult with acute nephritis, had total anuria, moderate uremia and moderate hypertension. The hypertension was repeatedly reduced with caudal analgesia, but the procedure seemed to bear no influence on subsequent diuresis, which may have been increased by other types of treatment given. The fourth patient, a child, had total anuria, uremia, rapidly progressive anemia, hypertension, cardiac failure and generalized convulsions. Moderate diuresis followed immediately the institution of continuous caudal analgesia, and the blood pressure was repeatedly reduced. However, the patient died. The mechanisms with which continuous caudal analgesia effects reduction in hypertension are believed to be increased blood flow to the lower extremities, probable dilation of the splanchnic bed and increased blood flow to the kidneys, possibly with resultant diminished production of renin. The use of continuous caudal analgesia may prove valuable for patients with severe acute nephritis who, in spite of the use of magnesium sulfate and other measures, continue to have extreme hypertension, cardiac failure or hypertensive encephalopathy. Hypertension in 2 additional cases of acute nephritis with severe cardiac failure has responded to continuous caudal analgesia.

**Congenital Diabetes Insipidus Resistant to "Pitressin."**—Dancis and his collaborators report the case of an infant in whom the presenting problem of recurrent bouts of unexplained fever was demonstrated to be secondary to dehydration resulting from extreme polyuria. It was believed that the polyuria was not due to deficiency in neurohypophysial activity, because (1) the polyuria did not respond to the administration of "pitressin" and (2) an antidiuretic substance presumably derived from the pituitary was present in the patient's urine in large amounts. The excessive diuresis in this patient may be due to a congenital anomaly of renal function resulting in a kidney unable to respond to normal hormonal control.

**Salmonella Meningitis.**—The recent occurrence in Gorgas Hospital of the Panama Canal Zone of meningitis due to Salmonella in 2 infants, 1 of whom recovered, prompted Henderson to review the hospital's clinical and laboratory records back to 1925. The search revealed a third case. The reviews of the literature revealed a total of 144 cases, the first report having appeared in 1907. The author's extensive bibliography contains 81 references. He believes the disease to be septicemia, with locus minoris resistentiae an important factor. Certain few types of Salmonella account for the majority of the cases. A combination of factors peculiar to newborn infants operates to make them especially susceptible to the infection. The clinical features for that group include an epidemic tendency, diarrhea and a rapidly fatal course, in contrast to sporadicity, common absence of diarrhea and better prognosis in older infants. In both groups the course is febrile, with leukocytosis. The spinal fluid shows an increase in cells, with an early predominance of neutrophils. The organism may often be seen on direct smear and is identified from cultural and serologic characteristics. At necropsy purulent meningitis is observed. The disease is favorably influenced by systematic treatment with sulfonamide compounds, sulfadiazine probably being the drug of choice. Of 19 patients treated in this manner, 10 recovered, while only 8 of 128 patients who did not receive a sulfonamide drug recovered. Penicillin is ineffective. The usefulness of streptomycin remains to be investigated. Blood transfusion appears to be a valuable aid. Prognosis also depends on the age of the patient and the type of organism causing the infection. Only 1 of 49 patients less than 1 month old recovered, whereas 17 of 80 children in the older age group lived. Patients with infections due to Salmonella paratyphi A, S. paratyphi B and Salmonella panama accounted for the majority of those who recovered, while 45 persons with infections due to Salmonella enteritidis and its varieties all died.

**Systemic Aleukemic Reticuloendotheliosis (Letterer-Siwe Disease).**—Varga and his associates say that although Letterer described a special type of reticuloendotheliosis in a young child almost twenty-five years ago, few cases have been reported since. The authors present the histories and necropsy reports of 3 young children with systemic aleukemic nonlipid reticuloendotheliosis recently studied by them. Two of the children exhibited cutaneous manifestations not unlike infected eczema. Emphasis is placed on the presence of these cutaneous lesions. Cutaneous lesions apparently are an essential part of the disease. Most reports identify them as petechial or purpuric, but the authors say that lesions similar to those described in their cases have also been mentioned in the literature. Infections, especially purulent otitis media, are mentioned in many cases. The following signs are listed as characteristic of

Letterer-Siwe disease: severe splenomegaly with moderate enlargement of the liver, a hemorrhagic tendency, with petechiae of purpura; a generalized glandular enlargement, localized tumors of bone (rarefactions), secondary anemia, fever and generalized hyperplasia of the reticuloendothelial system. The condition known as Letterer-Siwe disease may be less infrequent than supposed in the past. The authors believe that the clinical similarity to commoner diseases, such as infantile eczema, and its pathologic similarity to many other granulomatous diseases may have confused the diagnosis in the past. Antibiotic drugs failed in the reported cases and irradiation was not tried.

## American Journal of Ophthalmology, Chicago

### 31:915-1052 (Aug.) 1948

Clinical Course of Glaucoma: Review of 474 Cases from Private Practice. A. Posner and A. Schlossman.—p. 915.

Some Problems in Calibration of Tonometers. J. S. Friedenwald.—p. 935.

Beta Irradiation as Possible Therapeutic Agent in Glaucoma: Experimental Study with Report of Clinical Case. G. M. Haik, L. A. Breffeilh and Aeleta Barber.—p. 945.

Flare-up of Trachomatous Pannus Due to Ariboflavinosis. J. Landau and H. J. Stern.—p. 952.

Mikulicz's Disease and Syndrome. P. Heath.—p. 955.

Operative Failures for Chronic Simple Glaucoma: Histologic Study. B. F. Payne.—p. 965.

Technic for Muscle Resection Without Use of Prince Forceps. E. Yasuna.—p. 972.

Modification of Elliot's Operation and Its Application to High Trephination: Preliminary Report. W. Atkin.—p. 975.

Note on Methodological Evaluation of Selected Visual Tests. J. Brozek, E. Simonson and J. C. Franklin.—p. 979.

Some Experiments with Green Spectacles Prescribed to Glaucomatous Patients. R. B. Zaretskaya.—p. 985.

Rubeosis Iridis Diabetica. J. V. Lisman.—p. 989.

## Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

### 60:153-292 (Aug.) 1948

Technics for Application of Betatron to Medical Therapy. G. D. Adams, G. M. Almy, S. M. Dancoff and others.—p. 153.

Some Depth Dose Studies of Roentgen Rays for Energy Levels from 20 to 100 Million Electron Volts. E. E. Charlton and H. E. Breed.—p. 158.

New Photographic Material for Gamma-Ray Dosimetry. H. O. Whipple, C. S. Hornberger, J. G. Hoffman and J. F. Nolan.—p. 175.

Considerations in Treatment of Hemangioma in Infants and Young Children. E. P. Pendergrass, J. C. Katterjohn and J. B. Butchart.—p. 182.

*Colloidal Lead Orthophosphate Associated with Deep Roentgen Therapy in Bone Metastases from Cancer of Breast. L. Reynolds, T. Leucutia, J. C. Cook and K. E. Corrigan.—p. 193.

Simultaneous Disappearance of Treated and Untreated Tumors After Irradiation. A. J. Delario.—p. 207.

Diagnosis of Suprasellar Tumors by Pneumoencephalography. N. S. Schlezinger and J. G. Teplick.—p. 213.

Retrocardiac Bronchiectasis. R. G. Bloch, L. F. Sandock and E. B. Mitchell.—p. 219.

Clinical and Pathologic Observations in Study of Degenerative Arthritis of Hip Joint. T. Horwitz.—p. 225.

Hypertrophic Osteoarthropathy. H. L. Temple and G. Jaspin.—p. 232.

Sclerosis of Bones in Gaucher's Disease. F. Windholz and S. E. Foster.—p. 246.

Case of Long Standing Sickle Cell Anemia with Marked Bone Changes. Inga F. Weil and H. H. Lerner.—p. 251.

Diverticulosis of Gallbladder: Case Report. A. J. Ackerman.—p. 256.

**Lead Orthophosphate and Roentgen Rays in Bone Metastases.**—A review of the literature convinced Reynolds and his co-workers that colloidal lead orthophosphate, introduced by Ullmann and Bischoff, is considerably more stable and less toxic than the electric suspension of metallic lead used by Bell for the treatment of cancer. Diffraction studies performed in rabbits at Harper Hospital confirmed the affinity of the lead for the osseous system, the largest deposition occurring along the epiphysial lines. The intravenous injection of colloidal lead orthophosphate in conjunction with roentgen therapy leads to a threefold effect in the malignant neoplastic invasion of the osseous system: (1) The lead has a certain toxic action in itself; (2) there is a direct destructive effect of the roentgen ray, and (3) the heavy lead atoms deposited within the tumor area emit, under the influence of the roentgen irradiation, ionizing secondary electrons which also act on the carcinoma cells. The method has been used during the past twenty years in a series of 355 cases of bone metastases chiefly from carcinoma of the breast. In 95 per cent of the cases the immediate palliative effect was remarkable. The average survival amounted to three years. In 4 per cent the survival was more than five years. More recently attempts were made to use radioactive lead orthophosphate to add internal irradiation, if possible, to the enumerated threefold effect. In a series of preliminary experiments tracer studies were carried out in rabbits and some patients by injecting a specially prepared colloidal solution of the lead orthophosphate in which the phosphorus was "tagged." The results substantiated the findings arrived at by chemical and roentgen diffraction analysis. Investigations with "tagged" lead are necessary before worthwhile therapeutic efforts can be undertaken.

## Archives of Internal Medicine, Chicago

### 81:249-430 (March) 1948

Spontaneous Myohemoglobinuria in Man: Description of Case with Recurrent Attacks. F. L. Kreutzer, L. Strait and W. J. Kerr.—p. 249.

Neurocirculatory Asthenia, Anxiety Neurosis or Effort Syndrome. M. E. Cohen, P. D. White and R. E. Johnson.—p. 260.

Effect of Lanatoside C on Circulation of Patients with Congestive Failure: Study Using Catheterization of Right Side of Heart. E. A. Stead Jr., J. V. Warren and E. S. Brannon.—p. 282.

Place of Intermittent Venous Hyperemia in Treatment of Obliterative Vascular Disease. M. H. Evoy and G. de Takats.—p. 292.

*Pancreatic Calcification: Study of Clinical and Roentgenologic Data on 39 Cases. E. E. Gambill and D. G. Pugh.—p. 301.

Insulin Allergy: Treatment with Histamine Antagonists. S. P. Klein.—p. 316.

Heterophile Antibody Titer in Diseases Other Than Infectious Mononucleosis. Loraine E. Schultz.—p. 328.

*Mixed Infection in Subacute Bacterial Endocarditis: Report of 2 Cases. M. G. Olinger.—p. 334.

Primary Systemic Amyloidosis Simulating Constrictive Pericarditis: with Steatorrhea and Hyperesthesia. J. W. Findley Jr. and W. Adams.—p. 342.

*Studies on Hypertension: VII. Mechanism of Fall in Arterial Pressure Produced by High Spinal Anesthesia in Patients with Essential Hypertension. R. Gregory and W. C. Levin.—p. 352.

Exophthalmos and Thiouracil Therapy. W. H. Beierwaltes.—p. 364.

Lobar Adenocarcinoma of Lung Simulating Pneumonia: Report of 2 Cases. Gertrude Silverman and A. Angrist.—p. 369.

**Pancreatic Calcification.**—The objectives of the analysis presented by Gambill and Pugh were (1) to study the symptoms and the roentgenologic features in cases of pancreatic calcification and (2) to learn whether there is any correlation between the extent of calcification in the pancreas and the incidence of clinical manifestations, with particular reference to the manifestations of other complications of pancreatic disease such as diabetes mellitus and steatorrhea. There were 39 cases in which, in the opinion of one of the authors, the criteria for the roentgenologic diagnosis of pancreatic calcification were fulfilled. They found that calcareous deposits in the pancreas were usually but not always associated with relapsing pancreatitis. Commonly the symptoms were those of pancreatitis, although in approximately two fifths of the cases there was either no history of pancreatitis or a doubtful one. Among cases in which a definite history of pancreatitis was obtained calcification became evident in a fifth in one year after the onset of pain, but in another fifth calcification was not discovered until after eleven to twenty-two years. Associated complications in the order of frequency of occurrence were diabetes, steatorrhea, gastrointestinal hemorrhage, morphinism, pancreatic pseudocyst, pancreatic abscess and peripheral neuritis. There was a high degree of positive correlation between the extent of pancreatic calcification and the incidence of two other complications associated with pancreatic calcification, diabetes and steatorrhea. Diabetes and steatorrhea occurred only in cases of calcification in which there was a definite diagnosis of pancreatitis.

**Mixed Infection in Subacute Endocarditis.**—Olinger reports 2 cases of subacute bacterial endocarditis with mixed infection which responded favorably to antibiotic therapy. In the first case Corynebacterium pseudodiphthericum (hoffmannii) and Streptococcus viridans were present, the former having higher resistance to penicillin than the latter. When Corynebacterium was recognized as one of the infecting agents, penicillin was given in adequate dosage. In the second case Str. viridans and Hemophilus parainfluenzae were present. The simultaneous use of two antibiotics, penicillin and streptomycin, was necessary. This represents the third reported case of subacute bacterial endocarditis due to a gram-negative bacillus which was successfully treated with streptomycin. It is suggested that mixed infection in subacute bacterial endocarditis may be more frequent than is reported. Adequate selection of suitable antibiotics may require identification of all the organisms involved in a given infection.

**Reduction in Arterial Hypertension by High Spinal Anesthesia.**—This is the seventh of a series of reports on the effect of spinal anesthesia on hypertension. It is the first of several devised to elucidate the mechanism of the fall of arterial pressure produced by spinal anesthesia. Simultaneous arterial and venous pressures were determined in 5 normotensive subjects. Twelve separate studies were made in 10 patients with a clinical diagnosis of essential hypertension. Control observations were made, and similar determinations were then made with high spinal anesthesia induced by 150 mg. of procaine hydrochloride. Observations were continued during recovery stages. In the majority of the patients with essential hypertension, the arterial pressure fell before the venous pressure fell. In 1 case, the venous pressure fell without any significant decrease in arterial pressure. In only 2 cases, the venous pressure dropped first, and in these 2 cases the arterial pressures fell to their lowest levels before the venous pressures fell to their lowest levels. In these 2 cases, the arterial pressures were rising while the venous pressures continued to fall. There is no constant time correlation between the falls of arterial and venous pressures during high spinal anesthesia in patients with hypertensive disease. It is extremely unlikely that decreased venous return and diminished cardiac output are the causes of the fall in arterial pressure caused by high spinal anesthesia in either normotensive or hypertensive subjects. The failure of these data to support the idea that decreased cardiac output is the cause of falls in arterial pressure gives additional support to the likelihood that these falls in arterial pressure are caused by interruption of vasomotor function.

## Indiana State Medical Assn. Journal, Indianapolis

### **41**:781-884 (Aug.) 1948

Recent Advances in Pharmacology and Therapeutics. R. A. Solomon and others.—p. 799.
Colic in Infancy. R. Miller.—p. 806.
Mesenteric Adenitis of Distal Ileum and Appendicitis. O. W. Sicks. —p. 807.
General Treatment in More Severe Type of Burns. A. V. Cole.—p. 812.
Management and Treatment of Goiter. G. Link.—p. 814.

### **41**:885-992 (Sept.) 1948

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Treatment of Infantile Paralysis During Acute Stage. P. Lewin. —p. 908.
Anesthesia for Chest Surgery. M. B. Flanigan and H. T. Moore. —p. 911.
Surgical Conditions of Gall Bladder. M. B. Catlett.—p. 913.
*Tonsillectomy—Pro and Con. E. T. Gaddy.—p. 914.
Toxicology of Heavy Metals. L. T. Fairhall.—p. 917.

**Tonsillectomy—Pro and Con.**—Gaddy believes that tonsillectomy and adenoidectomy are indicated in children in whom hypertrophy causes obstruction with labored breathing. Tonsillectomy, after one or more attacks of peritonsillar abscess or quinsy, will prevent recurrences. Tonsillitis followed by systemic infections, such as acute rheumatic fever, endocarditis or nephritis, should be treated by tonsillectomy as soon as the acute attack of the complicating infection subsides. Routine removal of tonsils and adenoids in children is to be condemned because of subjecting the child to the risks of surgical treatment without benefit of improved health. In many cases, when normal tonsils and adenoids have been removed, the child's general condition becomes worse. This occurs because the common cold that is acquired in childhood, instead of becoming an ordinary infection of the upper respiratory tract, results in acute bronchitis, or bronchopneumonia or lobar pneumonia. This is due to the absence, or break in the protective ring, of lymphoid tissue in the pharynx and throat. The immediate postoperative complications are bleeding, pneumonia, acute otitis media, suppurative cervical adenitis, atelectasis, tetany, erysipelas and lung abscess. The author presents a photograph which illustrates the method which he has used for the past seven years for the prevention of postoperative complications after tonsillectomy. He uses postural drainage so that blood and saliva are not aspirated, and postoperative pneumonia and lung abscess are thus prevented. The relation of poliomyelitis and tonsillectomy during the months of July to October, inclusive, shows that the possibility of concurrence is minimal, but when it does occur it is generally of the serious bulbar type. The Board of Preventive Medicine advises physicians not to perform tonsillectomies when poliomyelitis epidemics occur during these months.

## Iowa State Medical Society Journal, Des Moines

### **38**:357-398 (Aug.) 1948

Anatomy and Physiology of Lesser Circulation as Basis for Understanding of Its Clinical Diseases. W. W. Wasson.—p. 357.
Diagnosis and Surgical Treatment of Patent Ductus Arteriosus. W. J. Potts.—p. 361.
Application of Oximetry and Cardiac Catheterization to Diagnosis of Congenital Heart Disease. H. B. Burchell.—p. 364.
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## Journal of Bacteriology, Baltimore

### **56**:143-258 (Aug.) 1948. Partial Index

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Nutritional Requirements of Treponemata: I. Arginine, Acetic Acid, Sulfur-Containing Compounds, and Serum Albumin as Essential Growth-Promoting Factors for Reiter Treponeme. H. Eagle and H. G. Steinman.—p. 163.
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Effect of "Tween 80," Bovine Albumin, Glycerol, and Glucose on Growth of Mycobacterium Tuberculosis Var. Hominis (H37Rv). T. H. Sattler and G. P. Youmans.—p. 235.

## Journal of Experimental Medicine, New York

### *88:149-266* (Aug.) 1948

Effect of Nucleic Acids and of Carbohydrates on Formation of Streptolysin. A. W. Bernheimer and M. Rodbart.—p. 149.
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Immunochemistry of Toxins and Toxoids: VI. Crystallization and Characterization of Tetanal Toxin. L. Pillemer, R. G. Wittler, J. E. Burrell and D. B. Grossberg.—p. 205.
*Isolation of Mumps Virus from Human Beings with Induced Apparent or Inapparent Infections. G. Henle, W. Henle, K. K. Wendell and P. Rosenberg.—p. 223.
Studies on Newcastle Disease Virus. F. B. Bang.—p. 233.

**Isolation of Mumps Virus.**—The Henles and their associates were concerned with the isolation of mumps virus from the saliva of human beings at various stages of infection. It was considered difficult to approach these problems under epidemic conditions, since frequently the time and intensity of exposure would not be accurately known, whereas the study of persons experimentally exposed to mumps virus offered the advantage of controlling both these factors. Exposure of 15 children to mumps virus of fifth amniotic passage in chick embryos led to involvement of the salivary glands in 6, orchitis in the absence of other manifestations of mumps in 1 and no signs of illness in 8. Attempts to isolate virus from the saliva of these persons gave the following results: 1. All patients with involvement of the salivary glands excreted virus beginning on the eleventh to fifteenth day after exposure, two to six days prior to onset of clinical signs of disease and extending up to the fourth day of illness. 2. The patient with primary orchitis without any recognized involvement of the salivary glands excreted virus for two days, beginning on the fifteenth day after exposure and ten days prior to his illness. 3. Six of the 8 children classified as having inapparent infections because of their serologic response in the absence of clinical signs of illness began to excrete virus on the fifteenth to sixteenth day after exposure for one to nine or more days. The epidemiologic significance of these data is discussed.

## Journal of Lab. and Clinical Medicine, St. Louis

**33**:919-1058 (Aug.) 1948

Antihyaluronidase Antagonistic to Pneumococcus Hyalronidase in Serum of Normal Human Beings and Patients with Pneumococcic Pneumonia: Rise of Titer in Bacteremic Pneumococcic Pneumonia. R. T. Thompson.—p. 919.
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*Studies in Hodgkin's Syndrome: VII. Nitrogen Mustard Therapy. R. P. Zanes, C. A. Doan and H. A. Hoster.—p. 1002.
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Effect of 2,3-Dithiopropanol (BAL) on Gold Toxicity in Rats. C. S. Gillmor and R. H. Freyberg.—p. 1024.
*Effect of Feeding Propylthiouracil and Cholesterol on Blood Cholesterol and Arterial Intima in Rat. L. Horlick and L. Havel.—p. 1029.

**Hr Blood Factors as Cause of Transfusion Reaction.**—According to Wiener, Rh-positive persons can be isosensitized because of the existence of more than one variety of Rh factor and the so-called Hr factors. Luckily, these other blood factors are far less antigenic than the original rhesus factor ($Rh_0$) so that such cases are rather rare. When isosensitization does occur it hardly ever reaches the degree characteristic of $Rh_0$ or A-B sensitization, so that the antibodies usually are not demonstrable in the sensitized person's serum and the reactions following transfusions of incompatible blood are mild and simulate pyrogenic reactions. These minor hemolytic reactions occurring in Rh-positive recipients are the subject of the present paper. The cases forming the basis of this study were derived principally from the Blood Transfusion Division of the Jewish Hospital of Brooklyn. The author lists 32 cases of post-transfusion febrile reactions. In cases 1 to 22 there was some clinical evidence of post-transfusion hemolysis, while in cases 23 to 32 there was no evidence of hemolysis. While the distribution of the Rh-Hr among the control cases (cases 23 to 32) did not seem unusual, the distribution among the patients who had hemolytic reaction deviated strikingly. One cannot avoid being impressed by the large proportion of Hr-negative patients in the series—14 $Rh_1Rh_1$ and 3 $Rh_2Rh_2$ out of 22 cases. These results suggest that sensitization to the Hr factors, hr' and hr", must have played a role in many of the reactions. Hr antibodies were clearly demonstrable in the serums of only 3 (2 anti-hr' and 1 anti-hr") of the 17 presumably sensitized patients. This indicates that Hr sensitization, when it occurs at all, is usually mild. That such reactions may occasionally endanger the life of the patient is demonstrated by the fact that 1 of the 3 patients with demonstrable antibodies died. While routine pretransfusion Hr typing is still not practicable, one should at least investigate every febrile reaction for evidence of hemolysis. If hemolysis has occurred even though the patient is Rh positive, Hr tests should be done, and if the patient is found to be Hr negative, only Hr-negative blood of a compatible blood group should be used for future transfusions. If Rh-negative patients have reactions despite transfusions of type Rh blood, one should search for other sensitizations, particularly against the M factor. Eventually blood transfusion practice should include precautions to avoid sensitization against the Hr factors as well as the Rh factors, particularly in the case of women, in order to avoid the birth of babies with erythroblastosis caused by Hr sensitization.

**Nitrogen Mustard in Hodgkin's Syndrome.**—Zanes and his associates report on 31 patients with Hodgkin's disease who were treated with a total of 44 courses of methyl-bis (beta-chloroethyl) amine hydrochloride. Each patient was given 0.1 mg. of the nitrogen mustard per kilogram of body weight for five days with the exception of the 7 patients who were given a double dose on two consecutive days and a single dose on the third day. Each dose was dissolved in 10 cc. of isotonic sodium chloride solution and injected immediately via the tube through which isotonic sodium chloride solution was being administered intravenously to the patient. From 200 to 500 cc. of isotonic sodium chloride solution was infused during each injection of the nitrogen mustard. Beneficial results were observed in 20 patients receiving twenty-four courses. Indirectly, 3 other patients benefited through an apparent resensitization to roentgen rays. Improvement was characterized in most instances by immediate disappearance of fever, itching and pain. Brownish pigmentation of the skin was observed to decrease in several cases as did Hodgkin's skin lesions, splenomegaly, hepatomegaly and adenopathy. The toxic effects of the hydrogen mustard on hemopoietic and lymphoid tissues as reflected in peripheral blood and sternal marrow changes are described and discussed. These changes are contrasted with hematologic alterations observed during Hodgkin's disease. Nausea and vomiting was observed consistently after nitrogen mustard therapy. Unusual complications include ulceration and perforation of the mucosa of the gastrointestinal tract. Skin lesions macroscopically similar to those frequently seen in Hodgkin's disease appeared in an unusually large number of cases following nitrogen mustard therapy.

**Effect of Feeding Propylthiouracil and Cholesterol on Arterial Intima.**—According to Horlick and Havel previous work demonstrated that thyroidectomy renders animals more susceptible to the cholesterolemia and atherosclerosis which follow the feeding of cholesterol. Feeding desiccated thyroid or potassium iodide seems to protect the animals against the development of cholesterol-induced lesions and lowers the blood cholesterol levels. The authors were able to confirm the protective action of desiccated thyroid in another species, the chicken. They also observed the synergistic effect of cholesterol and thiouracil on raising the blood cholesterol levels of the chicken. With these considerations in mind, they decided to use the antithyroid drug thiouracil in the rat in an attempt to break down the resistance of this species to the induction of atherosclerosis by feeding of cholesterol. They found that propylthiouracil did not succeed in breaking down the rat's resistance to cholesterol-induced atherosclerosis. The resistance to atherosclerosis in this animal is probably dependent on other factors in addition to the thyroid gland and its secretions.

## Journal of Nervous and Mental Disease, New York

**108**:91-180 (Aug.) 1948

Studies of Finger Capillaries in Schizophrenia and Manic-Depressive Psychoses. A. Hauptmann and A. Myerson.—p. 91.
Wernicke's Disease (Polioencephalitis Haemorrhagica Superior) and Vegetative Nervous System. L. Hess.—p. 109.
Neurosurgical Lesions Diagnosed as Multiple Sclerosis. S. Rosner. —p. 113.
*Methyl Hydantoin (Mesantoin) in Treatment of Epilepsy. N. A. David, L. S. Durkin, M. L. Margason and W. A. Viele.—p. 118.
*Obesity Following Cerebral Injury. J. E. Pisetsky and B. Roswit. —p. 129.
Note on Some Basic Concepts of Psychotherapy. L. Bellak.—p. 137.
Clinical Studies of. Psychoses in Navy: II. Prognosis. C. K. Aldrich and Mabel Coffin.—p. 142.
Compulsive Neurotic Criminalism with Hysterical Features Based on Sexual Psychopathy: Case Study. H. R. Lipton.—p. 149.

**Methyl Hydantoin ("Mesantoin") in Epilepsy.**—David and his co-workers tried the new anticonvulsant drug methyl hydantoin, called "mesantoin," for periods as long as eight months in the treatment of 20 patients with epilepsy. Eleven patients had grand mal seizures, 5 had petit mal epilepsy, 3 had both grand mal and petit mal attacks and one had jacksonian epilepsy. Administration of methyl hydantoin proved more effective in grand mal than previously used drugs in 7 of 11 patients. The number of petit mal attacks was decreased in each of the 16 patients suffering from this condition. *Inconclu-*

sive results were obtained in the 3 patients with both grand mal and petit mal because the period of observation was too brief. Dermatitis was caused by the drug in 3 patients; 1 patient complained of gastritis; another experienced an episode of toxic psychosis following administration of only four tablets, and 10 patients noted stimulatory effects. The authors believe that methyl hydantoin is an effective drug in the treatment of grand mal epilepsy and is especially useful in those cases in which phenobarbital causes undue mental depression or in which either phenobarbital or diphenylhydantoin sodium is ineffective. It appears somewhat more effective in the treatment of petit mal than diphenylhydantoin and should be given clinical trial in those cases of either grand mal or petit mal epilepsy in which other drugs are ineffective or not tolerated.

**Obesity Following Cerebral Injury.**—Pisetsky and Roswit present the case of a man, aged 51, who in a few months following a head injury gained 246 pounds (111.6 Kg.) in weight. The lesion was referred to the area of sella turcica. There was no evidence of any other metabolic disorder. The authors discuss the hypothalamic-pituitary system in relation to the possible role in the production of obesity.

## New York State Journal of Medicine, New York

### 48:1759-1870 (Aug. 15) 1948

Some Newer Aspects of Protein Metabolism: I. Résumé of Experimental Data. D. Schwimmer and T. H. McGavack.—p. 1797.
Role and Control of Renal Dysfunction in Congestive Heart Failure. L. Leiter—p. 1803.
Fetal Defects Resulting from Illnesses of Pregnant Mother with Special Reference to Virus Diseases. M. H. Bass.—p. 1807.
*Significance of Cholesterol in Coronary Arteriosclerosis. A. Steiner. —p. 1814.
*False Serologic Tests for Syphilis in Infants of Treated Mothers. D. Moon-Adams.—p. 1819.
Use of Methylcellulose as Bulk Laxative. K. Schweig.—p. 1822.
Early Care of Hand Injuries: Some Common Difficulties. C. W. Cutler Jr.—p. 1824.
Physician and Venereal Disease Patient. L. E. Luehrs.—p. 1827.
Accident Prevention in Medical Practice. H. E. Kleinschmidt.—p. 1831.
Medical Treatment of Ménière's Syndrome. J. J. Rainey.—p. 1833.

**Cholesterol in Coronary Arteriosclerosis.**—Steiner demonstrated that arteriosclerotic lesions in young dogs similar in distribution and morphologic characteristics to human arteriosclerosis resulted from prolonged hypercholesterolemia. High serum cholesterol values were produced by the feeding of 10 Gm. of cholesterol daily to dogs whose thyroid function was modified by administration of thiouracil. Additional experiments showed that choline was effective in preventing arteriosclerosis in cholesterol-fed rabbits for a limited period, and in some instances caused a reabsorption of the previously induced arteriosclerotic lesions. Repeated consecutive determinations of serum cholesterol for periods up to two years in 15 patients with coronary arteriosclerosis, in 15 relatively normal persons, and single serum cholesterol determinations in 50 additional patients with coronary arteriosclerosis and in 50 normal persons of the same age group revealed that the serum cholesterol level of patients with overt coronary arteriosclerosis is significantly higher than the serum cholesterol level in normal persons in the same age groups. In addition, the serum cholesterol level of patients with coronary sclerosis fluctuates widely. An attempt to evaluate the significance of the cholesterol content of the diet in 14 patients with coronary arteriosclerosis has been made. It has been shown that within the limits of this study varying the cholesterol content of the diet fails to produce significant alterations of the serum cholesteral levels. Preliminary results indicate that large amounts of dietary cholesterol can be absorbed from the gastrointestinal tract without alteration of the serum cholesterol or clinical evidence of cholesterol deposition in the tissues. Further studies in cholesterol metabolism using tagged atoms are needed.

**False Serologic Reactions for Syphilis.**—Moon-Adams examined 470 infants of treated syphilitic mothers within the first three months of life for serologic, clinical and roentgenologic evidence of syphilis. False positive serologic reactions were observed in 69 of 146 infants (47.3 per cent) tested in the first month of life, in 16 of 232 infants (6.9 per cent) tested in the second month of life and in 1 of 87 infants (1.2 per cent) tested in the third month of life. False negative reactions were observed in 5 of the 470 infants (1.0 per cent of the total). In 1 of these syphilis was probably acquired. The duration of false positive serologic reactions varied from twenty-four days to fourteen weeks. Of the total 86 infants with false positive serologic reactions, 31 (36 per cent) had become negative in reaction in four weeks; 64 (74 per cent) in eight weeks; 80 (93 per cent) in twelve weeks, and 84 (97.7 per cent) in fourteen weeks. Correlation of the number of false positive serologic reactions with the time of mother's treatment shows a higher percentage in the infants of mothers treated in the last trimester of pregnancy. Compared with statistics based on mothers treated with arsenicals and bismuth compounds, a greater number of false positive serologic reactions can be expected in the infants of mothers treated with penicillin. In cases of mothers who have secondary syphilis during pregnancy and who receive treatment in the eighth month of pregnancy, it seems highly probable that the false positive reaction of the infants is not properly termed "false" but is evidence of a treated syphilitic infection contracted and cured in utero. In cases of mothers who were treated prior to pregnancy and received no treatment during pregnancy, it seems probable that a positive serologic reaction in the infant, which reverses to negative, represents a transfer of the reagin of the mother's blood. If these possibilities are accepted, the so-called false positive serologic reaction of the newborn infant has a dual cause.

## Public Health Reports, Washington, D. C.

### 63:1027-1058 (Aug. 6) 1948

Tuberculosis Mortality in the United States, 1946. Evelyn H. Halpin. —p. 1029.
Arm Rest for Use in Microscopy. G. A. Spendlove, M. Cummings and R. Patnode.—p. 1046.

### 63:1059-1082 (Aug. 13) 1948

New Public Health Laws.—p. 1059.

### 63:1083-1110 (Aug. 20) 1948

Physical Impairments of Members of Low-Income Farm Families—11,490 Persons in 2,477 Rural Families Examined by Farm Security Administration, 1940: VII. Variation of Blood Pressure and Heart Disease with Age; and Correlation of Blood Pressure with Height and Weight. Mary Gover.—p. 1083.
Plague Infection Reported in United States in 1947: Human Case. —p. 1102.

### 63:1111-1146 (Aug. 27) 1948

The Pharmacist's Place in Cancer Control. R. F. Kaiser.—p. 1111.
*Cancer of Respiratory System in United States Chromate-Producing Industry. W. Machle and F. Gregorius.—p. 1114.
Half Century of State Cancer Legislation. A. V. Deibert.—p. 1128.

**Cancer of Respiratory System in Chromate-Producing Industry.**—Machle and Gregorius point out that in 1947 the management of one of the large producers of chromates in the United States became concerned with the incidence of lung cancer among their employees. An analysis of the mortality data of this company established the existence of high rates for lung cancer among the workers. A study was initiated by the health committee of the plants engaged in the extraction of chromates from ore. Of all deaths in the chromate industry 21.8 per cent were reported as being due to cancer of the respiratory system. This ratio is sixteen times the expected ratio of 1.3 per cent. The crude death rate for cancer of the lung was twenty-five times the normal. In five of the six plants investigated the death rate for lung cancer in the group 50 years of age and under ranged from twenty to seventy times that for a comparable industrial group. The mortality rates for lung cancer at ages over 50 years ranged from ten to forty times that for a comparable industrial group. There are no convincingly significant abnormalities in the rates for cancer in sites other than the lung. It appears that the problem in the chromate industry is limited to the cancers of the respiratory system. Sixty-six of the 193 deaths were due to cancer and 42 of these deaths were from cancers of the lung. One plant handling only bichromates, chromic acid and a tanning compound had 33 deaths, none of which was due to cancer of the respiratory system. This experience suggests that the monochromates may be the compounds responsible for cancer of the lung.

## FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

### British Journal of Ophthalmology, London

32:449-516 (Aug.) 1948

*Intravitreous Streptomycin: Its Toxicity and Diffusion. P. A. Gardiner, I. C. Michaelson, R. J. W. Rees and J. M. Robson.—p. 449.
Analysis of Fibre-Size in Human Optic Nerve. L. W. Chacko.—p. 457.
Acute Retinopathy Without Hyperpiesis in Diabetic Pregnancy. R. D. Lawrence.—p. 461.
Crater-Like Holes in Optic Disk. E. Rosen.—p. 465.
Case of Grönblad-Strandberg Syndrome with Disciform Degeneration of Macule. G. Hibbert.—p. 478.
Myxo-Hemangioma Simplex of Conjunctiva Bulbi. A. Bakker.—p. 485.
Prognosis of Retrobulbar Neuritis. W. F. T. Tatlow.—p. 488.
*Treatment of Severe Infected Corneal Ulcers by Subconjunctival Injections of Penicillin Twice Daily without Hospitalization, with Short Review of Other Methods. K. Rizk.—p. 497.
Operation for Persistent Pupillary Membrane: Notes on Case. Z. Báthori.—p. 505.

**Intravitreous Streptomycin.**—Gardiner and his associates say that previous studies have shown that streptomycin does not easily penetrate through the cornea. An attempt was made to investigate the concentrations of the drug attained in ocular fluids following its administration (1) into the vitreous and (2) subconjunctivally. An investigation of the action of streptomycin on the eye tissues following its intravitreous administration was also undertaken. Two samples of streptomycin were used. The pure sample was used for the intravitreous toxicity tests; it was streptomycin hydrochloride calcium chloride double salt. For the diffusion experiments the second sample of commercial streptomycin was used. For the diffusion experiments 2,000 micrograms of streptomycin was injected into the vitreous in 0.1 cc. of sterile isotonic sodium chloride solution. For the toxicity experiments two doses were used, 1.2 mg. and 3.0 mg., injected in 0.1 cc. isotonic sodium chloride solution. In these latter experiments the eyes were observed at regular intervals for twelve to one hundred and twelve days and the changes noted. The eyes were then removed and examined histologically. It was found that intravitreous injection of 2,000 micrograms of streptomycin acts as a depot from which streptomycin diffuses away slowly, chemotherapeutic concentrations still being present in the ocular fluids after three days. This slow rate of diffusion of streptomycin suggests that a single intravitreous injection of streptomycin might well be sufficient to deal with certain ocular infections in man. On the other hand, the present investigations revealed clearly that even 1.2 mg. of pure streptomycin produces serious and permanent retinal damage.

**Subconjunctival Penicillin in Infected Corneal Ulcers.**—Rizk resorted to subconjunctival injections at a time when there was a shortage of penicillin in Egypt. Patients dislike subconjunctival injections. Two instillations of 1 per cent tetracaine hydrochloride solution at three minute intervals while the eyes are closed are harmless to the epithelium and produce sufficient anesthesia to allow the prick of the needle to be done almost painlessly. Apart from the prick of the needle, the mere infiltration of fluid under the conjunctiva causes some pain. This pain can be easily abolished if 1 per cent procaine hydrochloride solution in nonpyrogenic distilled water is used instead of simple distilled water in the preparation of penicillin solution. A concentration of 20,000 units per cubic centimeter was found to be satisfactory in cases in which 10,000 units per cubic centimeter was not satisfactory. To a bottle of 100,000 units of crystalline penicillin salt, 5 cc. of 1 per cent procaine hydrochloride solution in distilled nonpyrogenic water was added, and 0.5 cc. was injected subconjunctivally twice daily. The eye is opened and partially fixed by a pair of Desmarres' retractors applied to the lids with their tips introduced into the fornices if the patient is unable to open and fix his eye while the injection is being given subconjunctivally at a distance of 2 to 3 mm. from the limbus. Ten injections are usually sufficient, and after that hot fomentations can be used. This method of treatment yields better results than the older methods, in which general sulfonamide therapy or foreign protein therapy formed a part of the treatment.

### British Journal of Radiology, London

21:373-430 (Aug.) 1948

Place of Physics in Training of Medical Radiologists. G. Stead.—p. 373.
*Angiocardiography in Diagnosis of Congenital Heart Disease. K. D. Keele.—p. 380.
*Angiocardiography Applied to Congenital Heart Disease: Observations on Radiology and Technic. J. A. Brocklebank.—p. 393.
Calcified Splenic Infarctions: Report of Case. G. L. Hardman.—p. 398.
Multiple Tuberculous Lesions of Spine. J. L. Feuchtwanger.—p. 400.
Irradiation Treatment of Carcinoma of Breast. F. M. Allchin and C. W. Wilson.—p. 406.
Time-Intensity Factors in X-Irradiation. E. Paterson and M. V. Thompson.—p. 414.
Negative Feed-Back Dosage-Rate Meter. R. J. Herbert.—p. 420.
Note on Self-Sealing Insulator for High Pressure Ionization Chamber. J. Read.—p. 425.

**Angiocardiography in Congenital Heart Disease.**—Keele points out that as surgical methods of treatment have become available for patent ductus arteriosus, coarctation of the aorta and Fallot's tetralogy, the problem of accurate diagnosis of congenital heart disease has assumed increasing importance. Angiocardiography provides a method whereby this necessary accuracy may be obtained. The shapes of the cardiac chambers differ in some respects from the anatomic descriptions founded on dissections of the cadaver. Reasons for these differences are suggested. Examples of abnormal angiocardiograms in a variety of congenital heart lesions are shown to illustrate the diagnostic value of the method. The author believes that angiocardiography should be used in any case of congenital heart disease where operation is being considered, as with patent ductus arteriosus and coarctation of the aorta, since it may not only provide proof of the suspected lesion but also reveal others.

**Technic of Angiocardiography in Congenital Heart Disease.**—According to Brocklebank, angiocardiography signifies an advance in the accurate diagnosis of congenital heart disease. The described method demonstrates that this is practicable with standard roentgenographic apparatus. Considerable improvement in technic and in the diagnostic value of the method can be expected as special accessories are developed and as more of the factors are more fully understood. Much yet remains to be explained in the appearances shown in the roentgenograms, and interpretation will improve with experience and as the results are compared with the findings of cardiac surgery. As at present practiced the method appears to be a safe and useful diagnostic procedure.

### British Medical Journal, London

2:281-322 (Aug. 7) 1948

Antihistamine Substances. H. Dale.—p. 281.
Caffeine and Gastric Secretion. D. R. Wood.—p. 283.
Rectal Cancer and Preservation of Function. E. G. Muir.—p. 286.
Clinical Features of Mustard-Gas Poisoning in Man. D. C. Sinclair.—p. 290.
Treatment of Typhoid Carriers with Penicillin and Sulphathiazole. R. M. Fry, R. E. Jones, B. Moore and others.—p. 295.
Paratyphoid Osteomyelitis: Report of 2 Cases. R. Rozansky, E. N. Ehrenfeld and Y. Matoth.—p. 297.
Salmonella Oranienburg Septicemia: Report of a Further Case. C. N. Partington and T. V. Cooper.—p. 298.

2:323-364 (Aug. 14) 1948

Recent Advances in Knowledge of Rh Factor. D. F. Cappell.—p. 323.
Preliminary Note on Influence of Heterospecific Immunization on Production of Rh Antibodies. J. J. van Loghem.—p. 326.
How Important is Transfusion as a Cause of Hemolytic Disease of Newborn? G. Discombe and H. O. Hughes.—p. 329.
Evolution of Gastric and Duodenal Ulceration. J. D. Craig.—p. 330.
Some Problems of Causalgic Pain: Clinical and Experimental Study. J. A. W. Bingham.—p. 334.
*A Fatal Case of Myelitis After Antirabic Vaccine. I. Ansell.—p. 338.

**Fatal Myelitis After Antirabic Vaccine.**—Ansell reports the case of a soldier, aged 26, who was serving in India. He had been well until a few days before his admission to hospital on July 9, 1946, when he first complained of fever and pains in his limbs. He had been bitten by a healthy puppy fourteen days previously, and had received twelve antirabic injections, starting two days after the incident. The dog was said to be still healthy and the course was thereupon stopped. The author presents a detailed clinical history and a necropsy report and says that this was not a case of rabies but probably of polyneuritis or myelitis due to the antirabic vaccine, the former being less likely in view of the absence of sensory changes. An alternative cause for the ascending myelitis could be acute anterior poliomyelitis, particularly as the latter is endemic in this part of India. In the reported case, killed carbolized vaccine was given, and skin sensitivity in the form of prominent reactions at the sites of inoculation was manifested. The balance of evidence would seem to be in favor of acquired anaphylaxis as the causation in this case. Antirabic treatment should be given only when the correct indications are present. A healthy dog should be kept under observation for the usual ten days before treatment is begun, except, possibly, in cases of severe bites on the face. A family or personal history of allergy indicates the need for preliminary skin tests for sensitivity, and if excessive local reactions occur during treatment the desirability of desensitization should be considered. If the neuroparalytic complications have already made their appearance, then, in view of the serious prognosis, especially in the Landry type, it would be worth while to try out the effect of antihistamine drugs on the basis of the allergic theory. An iron lung should be available in case of respiratory failure. The usual precautions during antirabic treatment—avoidance of unnecessary exertion and of alcohol, and provision of adequate rest—should be strictly enforced.

### Journal of Laryngology and Otology, London

**62**:487-550 (Aug.) 1948

Experimental Studies on Reliability of Audiometry. R. E. C. Brown and E. D. D. Dickson.—p. 487.
Metastatic Brain Abscesses and Encephalitis of Otitic Origin. P. G. Gerlings.—p. 525.
Note on Articulation of Auditory Ossicles and Related Structures. D. V. Davies.—p. 533.

### Journal of Pathology and Bacteriology, Edinburgh

**60**:1-156 (Jan.) 1948. **Partial Index**

Melanin-Forming Epidermal Tumours of Skin: Study of 57 Personally Observed Cases. M. J. Stewart and Georgiana M. Bonser.—p. 21.
New Salmonella Type: Salmonella Chittagong. Joan Taylor, W. Hayes, J. Freeman and E. S. Anderson.—p. 35.
Analysis of Certain Factors Associated with Production of Experimental Dissection of Aortic Media, in Relation to Pathogenesis of Dissecting Aneurysm. J. S. Robertson and K. C. Smith.—p. 43.
Massive Colony Formation of Bacterium Friedländeri in Liver in Agranulocytosis. Jane I. Davidson.—p. 51.
Thrombosis as Factor in Pathogenesis of Aortic Atherosclerosis. J. B. Duguid.—p. 57.
Nature of Anemia in Leukemia. D. H. Collins and W. McI. Rose—p. 63.
New Mycobacterial Infection in Man. P. MacCallum, Jean C. Tolhurst, G. Buckle and H. A. Sissons.—p. 93.

### Lancet, London

**2**:205-240 (Aug. 7) 1948

Cirrhosis of Liver in Ceylon and Its Relation to Diet: Review of 102 Cases. P. B. Fernando, O. R. Medonza, and P. K. Rajasuriya.—p. 205.
Acute Atropine Poisoning: Review of Eight Cases. R. B. Welbourn and J. D. Buxton.—p. 211.
Experiments with Occlusive Dressings of New Plastic. J. P. Bull, J. R. Squire and E. Topley.—p. 213.
Vitamin E (Tocopherols) in Collagenoses. J. F. Burgess.—p. 215.
Occupational Aneurysm of Palmar Arch: Report of Case. D. W. Short.—p. 217.
Associated Ectopic Anus and Uterus Didelphys: Report of Case. A. J. Underwood-Whitney.—p. 218.
Pyloric Obstruction with Tetany and Coma: Report of Case. H. G. Ungley.—p. 218.

### Medical Journal of Australia, Sydney

**2**:85-112 (July 24) 1948

Pathologic Physiology of So-Called Pyramidal Syndromes. C. G. Lambie and B. D. Wyke.—p. 85.
Nasal Desensitization in Allergy. G. Doyle.—p. 94.
Pulmonary Tuberculosis in South Australia. R. B. Lewis.—p. 97.

### Proceedings of Royal Society of Medicine, London

**41**:409-484 (July) 1948. **Partial Index**

Transperitoneal Dialysis. R. W. Reid:—p. 413.
Dialysis of Blood for Treatment of Uremia. E. M. Darmady.—p. 419.
Artificial Kidney: Its Clinical Application in Treatment of Traumatic Anuria. E. G. L. Bywaters and A. M. Joekes.—p. 420.
Acute Infantile Hemiplegia. W. G. Wyllie.—p. 459.
Thiersch's Operation for Anal Incontinence. W. B. Gabriel.—p. 467.
Anorectal Malignant Melanoma. R. W. Raven.—p. 469.
Spreading Ulceration of Skin Associated with Idiopathic Ulcerative Colitis. E. C. B. Butler.—p. 474.
Anesthesia in Babies and Children. R. W. Cope.—p. 479.

### Journal de Médecine de Lyon, Lyons

**29**:613-642 (Sept. 5) 1948. **Partial Index**

Esophago-Aerial Fistulas in Cancer of Esophagus. M. Levrat and G. Despierres.—p. 613.
*Why is it That Vaccination Increases the Incidence of Diphtheria in Nonvaccinated Persons? The Clue to An Enigma. R. Rendu.—p. 617.
Hazards of Cold Permanent Waves. P. J. Michel and J. Saint-Paul.—p. 625.

**Vaccination and Increased Incidence of Diphtheria.**—According to Rendu, French, Danish, Italian and Polish statistics of children in seven towns of these four countries show that during the period 1905 to 1933, when antidiphtheritic vaccination was not yet practiced, diphtheria occurred in 2,182 of 645,327 children; i. e., a morbidity rate of 3.38 per thousand per year. During the period 1935 to 1946, when antidiphtheritic vaccination was practiced on a large scale, diphtheria occurred in 2,568 of 644,010 vaccinated or unvaccinated children, a morbidity rate of 3.98 per thousand per year; diphtheria occurred in 1,684 of 154,321 unvaccinated children, a morbidity rate of 10.9 per thousand per year, and in 884 of 489,689 vaccinated children, a morbidity rate of 1.8 per thousand per year. Thus in these seven cities where three quarters of the children had been vaccinated, the average incidence of the disease among the unvaccinated seems to be three times higher after vaccination had been practiced on a large scale than before it was practiced, while the total morbidity rate has not been reduced. These paradoxic phenomena may be explained by incorrect statistical technics which do not take into consideration important facts such as epidemic bouts caused by the influx of new contingents of the population, influence of the seasons on the incidence of diphtheria and influence of the age of the children. The first injection of diphtheritic anatoxin renders the children hypersusceptible to the disease because of the reduced resistance of the organism resulting from the vaccinal shock. Vaccinated and unvaccinated persons must be compared with one another during the same lapse of time in order to provide statistical data of value. A large number of unvaccinated children represent those in whom vaccination was contraindicated by acute or chronic pathologic conditions, and who, therefore, are most susceptible to diphtheria. These statistical errors are responsible for the increased incidence of diphtheria in the unvaccinated children and for the drop in the incidence in the vaccinated.

### Klinische Wochenschrift, Heidelberg

**26**:385-416 (July 1) 1948. **Partial Index**

*Anatomicopathologic Observations on Cadavers of Patients Treated with Urethane. E. Letterer.—p. 385.
*Treatment of Non-Leukemic Diseases, Particularly of Lymphogranulomatosis with Urethane. H. E. Bock.—p. 390.
Experimental Investigation on Effect of Urethane on Phagocytosis, on Stellate Cell Storage and on Inflammation. W. Masshoff, W. Heinzel, G. D. von Rom and M. Siess.—p. 397.
Regulation of Albuminous Substance in Plasma. IV. Report. Plasma Albumin and Typhoid Fever. H. Pickert.—p. 400.

**Postmortem Studies After Treatment with Urethane.**—Letterer reports necropsy studies on 2 men aged 60 and 69 treated with urethane for lymphogranulomatosis, on a woman aged 59 treated with urethane for hypernephroma and on a man aged 67 treated for leukemic myelosis. Death resulted from pneumonia in all cases, from lobar pneumonia in 1 and from terminal bronchopneumonia in 3. The aleukocytic character of the microscopic picture of the pneumonias was striking; in addition there was noted a large number of causative agents in the alveoli of the lungs. The deficient formation of granulocytes was probably responsible for the weakening of the leukocytic defense, for the spread of the causative agent and for the atypical course of the pneumonic infiltration. Pneumonia with agranulocytosis is a reaction likely to result from treatment with urethane. The drug is responsible for the atrophy of leukocytes in normal lymph nodes and in those affected by lymphogranulomatosis. There is a simultaneous collagenization of the reticular fibers and a fibrosis of the entire lymph node; thus the lymphogranuloma becomes obliterated. The lymphocytes in the follicles of the spleen disappear and there is a simultaneous numerical decrease of nuclei in the pulp and a thickening of the sinus walls. There is no general decrease in the cells of the bone marrow; the maturing segmental forms disappear, while the number and the shape of the primary forms remain unchanged in the normal and in the leukemic marrow.

**Urethane in Nonleukemic Diseases.** — Bock treated 6 patients with lymphosarcomatosis by oral or rectal administration of 4 to 6 Gm. of ethyl urethane daily. In 5 of these patients there was only a temporary regression of the enlargement of the lymph nodes and of the spleen. Satisfactory results were obtained in 1 case of round cell sarcoma, but it is still too early for definite conclusions. Irradiation therapy may be omitted only in cases in which rapid improvement takes place. The treatment of malignant tumors with urethane failed most frequently because of the subjective and objective intolerance of the drug. The granulopoiesis was very sensitive to the drug in all cases. More satisfactory results were obtained in 8 cases of lymphogranulomatosis in 4 men and 4 women. Fresh cases with atypical proliferation of reticulum cells and with considerable capillarization showed the best and most rapid response. There was, however, no definite recovery which would have made further treatment with urethane dispensable. Granulopoiesis required constant control. Functional agranulocytosis may precede numerical neutropenia. The patient should be treated with penicillin and "de-ma," a preparation containing a mixture of equal parts of methylsulfapyrimidine and of 4-aminomethylbenzene sulfonamide salt of sulfathiourea. A sudden drop in erythrocytes requires discontinuation of urethane. With increased proliferation, the erythropoiesis also becomes sensitive to urethane although to a lesser extent than the granulopoiesis. Urethane is poisonous for mitosis, but its predominating toxic effect is on the metabolism of the nuclei by attacking proliferating cells in various phases. In this process a substance may be produced which causes the disappearance of megaloblasts and the appearance of reticulocytes in the periphery. Urethane also attacks the protoplasm in the ferment systems, and this effect may be manifested by peroxidase clots in granulopoietic cells. The effect of urethane is reflected only inadequately in the total consumption of oxygen by the bone marrow and blood.

## Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

**92:**1897-1988 (June 26) 1948. **Partial Index**

Familial Scleredema Adultorum (Buschke) Beginning at the Nates. G. G. Jagtman.—p. 1906.
Vitamin A in Treatment of Nongonorrheal Urethritis in Men. W. Stigter. —p. 1914.
*Leukemia and Salmonellosis (S. Dublin). W. H. H. Tegelaers, G. M. H. Veeneklaas, A. Clarenburg and H. H. Vink.—p. 1919.

**Leukemia and Salmonellosis (S. Dublin).**—Tegelaers and his associates present the case of a 2½ year old child, daughter of a stock breeder, who had acute lymphatic leukemia and salmonellosis. Bacteriologic examination of the blood revealed Salmonella dublin. The agglutination titer of the patient against this type of organism was 1 : 1,600. The feces also contained S. dublin. Since S. dublin occurs frequently in cattle, an examination was instituted to ascertain whether the salmonella infection in the child was in any way connected with a germ carrier in the cattle. A cow was found to excrete regularly with the feces a large number of S. dublin organisms. It may be assumed that the salmonellosis in the little patient had arisen secondarily to the leukemia.

## Prensa Médica Argentina, Buenos Aires

**35:**1425-1462 (July 23) 1948. **Partial Index**

*Antituberculosis BCG Vaccination in Cordoba, Argentina. G. Sayago, A. Chattas and A. P. H. Degoy.—p. 1425.
Typhoid Fever: Complications. Statistical Study of 1300 Cases. H. Rugiero, L. Charosky and H. Galli.—p. 1435.

**BCG Vaccination.**—Sayago and collaborators report on a large group of infants and children given BCG vaccination and a large group of infants and children who were not given the vaccination. The general mortality within the first year of life reached 8.3 per cent among the vaccinated and 15.6 per cent among the control group. A weak degree of tuberculin sensitivity was prevalent among the vaccinated in contrast to the strongly positive results of Mantoux's test eventually found in children belonging to the control group. Chest roentgen examinations performed on the vaccinated group disclosed 57.5 per cent of lesions among children with tuberculous contact and 18.9 per cent among the noncontacts, while in the control group there were 74.3 per cent of lesions in children exposed and 47.6 per cent in the noncontacts. In addition the roentgenograms in the vaccinated group proved to be less important than the ones seen in the nonvaccinated children, especially in the case of primary infection when the sole lymph node enlargement could be detected in the former.

## Revista Chilena de Pediatría, Santiago

**19:**371-440 (May) 1948. **Partial Index**

*Streptomycin in Abdominal Tuberculosis in Children. R. Matte, S. Ibáñez and A. Trautmann.—p. 371.
*Poliomyelitis: Epidemiologic and Sanitary Aspects. H. Romero and R. Armijo.—p. 389.

**Streptomycin in Abdominal Tuberculosis.**—Matte and his collaborators gave streptomycin to 10 children, between the ages of 6 and 12 years, with intestinal, peritoneal or both forms of tuberculosis. The disease was acute in all cases. It complicated pulmonary tuberculosis in some of the cases. The drug was administered in daily doses of 1 Gm. for the first and 0.5 Gm. for the second month. In some cases the treatment lasted for three consecutive months on the same dose schedule. The daily dose was given in fractional doses at intervals of eight hours for the first month and of six hours for the second month. Immediate and late results were satisfactory. The good results persist, after a period of two to seven months after discontinuation of the treatment.

**Poliomyelitis.** — Romero and Armijo studied the clinical records of 515 children with poliomyelitis who had been observed in different children's hospitals of Santiago since 1920. The disease was previously sporadic. Since 1935 it has been epidemic. The acuteness of the disease and the number of cases increase every year. The seasonal and age distribution are similar to classical descriptions. Few cases with transitory paralysis or paresis were observed. The bulbar type was rare. In spite of the low mortality, it is believed that in future there may be more serious forms with a tendency for the disease to occur in adults.

## Strasbourg Médical

**108:**197-208 (June 25) 1948

*Treatment of Leukemias with Urethane. Results Obtained at Medical Clinic A. A. Fitzenkam and R. Voegtlin.—p. 197.
Actual Orientation in Neuropsychiatry of Children. M. Mathis.—p. 201.
Precocious Anti-Rhesus Immunization in Course of Pregnancy. Pathogenic Considerations. R. Keller, R. Waitz, J. Fourcade and L. Grimault.—p. 203.

**Urethane in Leukemias.**—Fitzenkam and Voegtlin treated 9 patients, 7 men and 2 women between the ages of 15 and 66 years, 4 with chronic lymphoid leukemia, 2 with myeloid leukemia and 3 with subacute and acute leukoblastosis, by administration of 3 Gm. of urethane daily for seven days to two and one half months. Results showed that acute or subacute leukoblastosis do not offer any indication for treatment with urethane. Death occurred in 2 of the authors' cases. Chronic myeloid leukemia may be considered as a primary indication for treatment with urethane, not only because of the reduced leukocytosis but also because of the general improvement, the definitely reduced splenomegaly and the normalization of the leukocytic formula. In 2 of the patients with chronic lymphoid anemia the leukocyte rate was reduced; in certain of these cases urethane may control the proliferation of leukocyte-forming tissue or it may prevent the passage of pathologic elements into the circulating blood. In 3 cases with or without a drop in the leukocyte count, 1 of which was fatal, the adenopathy did not subside or showed only little improvement. In 1 case it was definitely increased and in 1 the signs of pyramidal irritation remained unchanged. Urethane should be given a trial in early cases of lymphoid anemia in addition to roentgen therapy, while in advanced cases only roentgen therapy combined with blood transfusions should be practiced. In cases in which roentgen treatment proved effective, urethane may be administered between the irradiation series, and may be useful in preventing recurrences. Nausea was associated frequently with treatment with urethane, but the accident that is to be dreaded most is the blocking of the normal hemopoietic system.

# Book Notices

**Diseases of the Ear, Nose and Throat.** By William Wallace Morrison, M.D., Professor of Otolaryngology and Attending Otolaryngologist, New York Polyclinic Medical School and Hospital, New York. [New edition.] Cloth. Price, $8.50. Pp. 772, with 359 illustrations. Appleton-Century-Crofts, Inc., 35 West 32nd St., New York 1, 1948.

Morrison's book was originally published under a different title and has now been reissued in a revised edition. In forty-four chapters the author has succeeded in incorporating much of the up-to-date material in otolaryngology. Considerable literature is represented. Although he states in his foreword that the book is intended for the undergraduate student and general practitioner, he has included rather advanced material that would not be considered applicable for this group. For example, much space is devoted to the description of the fenestration operation for otosclerosis and other advanced surgical procedures that certainly would not be carried out by a non-specialist physician. The introductory chapters pertaining to history taking are of utmost convenience to the general practitioner, providing adequate material for his diagnosis.

While one can feel that the author's own line drawings involved considerable work, there is a question whether these would be acceptable from the standpoint of what is considered valuable in modern medical illustration, especially when such outstanding artists are available. The photomicrographs, for example, surely would be much enhanced by the use of originals, and the anatomic illustrations, although duplicated from standard drawings, lack authenticity in correctness.

A number of therapeutic considerations still remain to be brought up to date. The most recent material on the employment of antibiotics in otolaryngology is included. The author includes a 10 page formulary of his prescriptions. There is also an excellent symptom index which surely will be advantageous to the reader. The organization of chapter material presented from an etiologic to a treatment point of view is good, although the important phase of differential diagnosis is somewhat deficient.

**Management in Obstetrics.** By Andrew M. Claye, M.D., F.R.C.S., F.R.C.O.G., Professor of Obstetrics and Gynæcology, University of Leeds, Leeds. Oxford Medical Publications. Fabrikoid. Price, $3.75. Pp. 186, with 17 illustrations. Oxford University Press, 114 Fifth Ave., New York 11; Amen House, Warwick Sq., London, E.C. 4, 1948.

This small book deals only with management of obstetrics, as indicated in the title. At the beginning of most of the thirty-six chapters there are quotations, mostly from Shakespeare, which show that the author has an excellent sense of humor. For example, at the head of the chapter "Abortion" is the quotation, "Like ships that sailed for sunny isles, but never came to shore"; in the chapter on "Twins" is "Double, double, Toil and Trouble"; in the chapter on "Breech in Pregnancy" is "Turn, hell-hound turn," and in the chapter on "Hydramnios" is "Too much of water hast thou, poor Ophelia."

The book contains much useful advice and many worth while recommendations. It is tersely written and usually dogmatic, but since the treatment prescribed is sound and practical this is no criticism. There are only seventeen illustrations, but, of course, this small book was intended to be used in conjunction with one of the large standard textbooks of obstetrics. For its limited field the book can be recommended highly.

**Bronchiogenic Carcinoma and Adenoma. With a Chapter on Mediastinal Tumors.** By B. M. Fried, M.D., Associate Attending Physician, Montefiore Hospital for Chronic Diseases, New York. Cloth. Price, $6. Pp. 306, with 118 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

This addition to the already voluminous literature on carcinoma of the lung is written by an author who has had a large clinical experience with the disease. It is written for the clinician. The material is presented in twelve chapters and three supplements interposed into the text. There are chapters on incidence, pathologic anatomy, histogenesis and classification, alveolar cell cancer and adenomatosis of the lungs, etiology, metastases, clinical manifestations, tumors of the superior pulmonary sulcus, laboratory methods of diagnosis, treatment, bronchiogenic adenoma, mediastinal tumors, and others.

Despite this imposing array of titles, the subject of cancer of the lung and mediastinal tumors is not completely covered. There are many omissions. On the other hand, there is a long chapter on hypertrophic pulmonary osteoarthropathy, and many digressions are made into interesting but nonessential subjects. Case reports are used to illustrate many points.

Probably no other major form of cancer has become surrounded by so many points of controversy as has carcinoma of the lung. The author expresses definite views on many of them. Thus, he accepts the theory of "chronic irritation" in etiology, and the basal cell of the bronchi in histogenesis ("primary carcinoma of the lungs is only bronchiogenic in origin"). He combines the concepts of alveolar cell carcinoma and adenomatosis (jaagsiekte), although on the basis of what evidence is not clear. In microscopic classification, oat cell and anaplastic tumors are regarded as varieties of squamous cells! He believes that an increase in cancer of the lung is more apparent than real.

This book, despite its good points, is recommended with reservations because of errors of fact, which are most numerous in the chapters on etiology and on pathologic anatomy, histogenesis and classification. It is not "well established that one of the factors leading to the development of a cancer is chronic inflammation (irritation) which causes degeneration of cells, followed by an excessive regeneration." It is also untrue that pulmonary tumor in mice . . . "never causes death of the animal," or that in influenza "the changes in the lungs caused by the supposed pathogen have never been fully described." The book could be greatly improved by additional editing.

**Arterial Hypertension.** By David Ayman, M.D., Instructor in Medicine, Tufts College Medical School, Boston. Edited by Henry A. Christian, A.M., M.D., LL.D., [Reprinted from Oxford Loose-Leaf Medicine with the same page numbers as in that work.] Cloth. Price, $2.50. Pp. 508 (173)-508 (265), with 9 illustrations. Oxford University Press, 114 Fifth Ave., New York 11, 1948.

This book opens with a brief foreword by Henry Christian, in which he states, "Dr. Ayman has had an extensive experience with hypertensive patients, whom he has subjected to long continued, thorough, clinical study in the homes of the patients, in the out-patient clinic, and in the wards of a hospital, before, after and when undergoing various forms of treatment, including sympathectomy . . ." This evidence of the author's qualifications to write on the subject of arterial hypertension becomes more and more impressive as the book is read. Dr. Ayman is writing from first hand information, from personal observations of hypertensive patients under a variety of conditions, and he interprets the results of his studies in an unbiased, objective manner.

Although this work is largely the result of the author's careful studies of a large number of cases, treated in a variety of ways, he is thoroughly familiar with the vast literature on the subject and frequently refers to the work or opinions of others. The chief value of the book, however, is the wealth of personal observations, evidently carefully recorded, and presented in a clear, simple style.

This work on hypertension is conveniently divided into numerous subdivisions. After a brief introduction and history of the disease, the possible causation is considered with emphasis on the hereditary nature of the condition and the possible nervous and psychosomatic factors. Experimental hypertension is discussed, but the author does not consider hypertension in man and the experimental animal as related. He considers the etiology of human arterial hypertension as absolutely unknown.

The pathologic physiology and gross and microscopic pathologic changes are briefly discussed, as are the constitutional type and personality of the hypertensive patient.

An excellent description of the symptoms and evolution of hypertension from its earliest stages to the most severe malignant type is given. This portion of the book is particularly commended and can be read with profit by students and practitioners alike. The physical and roentgen findings and electrocardiographic changes are briefly but clearly covered.

Particularly important is the section on treatment of the various manifestations of hypertension and of the elevated blood pressure, the latter being correctly considered as only a part of the over-all picture of the disease called arterial hypertension.

It is unusual in a work of this type to consider separately the treatment of psychoneurotic, vasospastic and organic symptoms, but it seems much worth while.

The surgical treatment of hypertension by splanchnicectomy is fairly presented; contrary to the view held by many internists, this author, basing his opinion on close personal observation, considers that the operation has definite value.

The usual medical treatment, including the use of potassium thiocyanate, is of course included. A bibliography of 99 titles, all referred to in the body of the book, and a useful index complete the volume. It is definitely recommended as a clear, concise exposition of arterial hypertension and its treatment.

**Fundamentals of Immunology.** By William C. Boyd, Ph.D., Associate Professor of Biochemistry, Boston University School of Medicine, Boston. Second edition. Cloth. Price, $6. Pp. 503, with 50 illustrations. Interscience Publishers, Inc., 215 Fourth Ave., New York 3, 1917.

This widely accepted standard treatise on immunology is highly recommended as collateral reading for all graduate students in the medical sciences and medical and veterinary students. Its wealth of basic material and comprehensive bibliographies make it a valuable reference work for the advanced student of immunology and the practicing physician.

The second edition retains all outstanding features of presentation and organization that characterized the original work. The two most notable improvements in its organization are the addition of excellent summaries at the end of each chapter and the elimination of passages in small type. Bibliographies have been brought more nearly up to date and provide a broad coverage of fundamental source material.

Much new material has not been added; however, much of the old material has been worked over and rewritten in the light of more recent experimental data. A thorough going discussion of the Rh antigen and all of its medical implications has been added. The methanol precipitation method of purifying bacterial toxins and the use of ultraviolet irradiation for inactivation of various virus vaccine preparations are discussed.

Detailed chapters on anaphylaxis and allergy, allergy and immunity, practical use of immunity, and laboratory and clinical technic are included.

***Minor Surgery.*** *By Frederick Christopher, B.S., M.D., F.A.C.S., Associate Professor of Surgery, Northwestern University Medical School, Chicago, Ill. Sixth edition. Cloth. Price, $12. Pp. 1058, with 937 illustrations. W. B. Saunders Co., W. Washington Sq., Philadelphia 5, 1948.*

The sixth edition does not vary greatly from previous editions except in an obviously successful effort to keep abreast with progress in surgical science. All the newest advances which have gained acceptance as useful technics are included. The number of references is enormous and direct quotations are employed with advantage. Numerous forms of therapy are cited. In the treatment of so-called minor surgical problems there are often many ardently advocated methods, whereas in the major surgical fields the advocated technics are fewer but the discussions are equally heated. This leads one to the conclusion that minor surgery is that performed by every clinical physician and surgeon, and major surgery is that performed only by specialists. A good definition!

**A Symposium on the Use of Isotopes in Biology and Medicine.** By Hans T. Clarke and others. [Addresses Delivered at an Institute Held at the University of Wisconsin from September 10 to September 13, 1947.] Cloth. Price, $5. Pp. 445, with illustrations. University of Wisconsin Press, Madison, Wisconsin, 1948.

This symposium is an authoritative collection of papers presented by men prominent in the field of radioisotopes in medicine and biology. Important uses of isotopes in biology and medicine are adequately covered in not too lengthy chapters. Use of isotopes as tracers in protein, fat, carbohydrate and mineral metabolism is discussed in some detail. The present status of radioiodine in the study of thyroid physiology and treatment of hyperthyroidism is well covered. The uses of radiophosphorus in the treatment of certain blood diseases, as well as the application of numerous other isotopes as diagnostic aids in health and disease, are presented.

Of great importance to the physician are the sections dealing with the production and availability of isotopes, the proper methods of handling and measuring them and the necessary safeguards against the health hazards in connection with their use.

Finally, there are papers discussing the international, political, and social aspects of atomic energy and its role in the future.

**Electroencephalographic Study of Neuropsychiatric Disorders: Covering *159 Cases of Epilepsy, 53 of Suspected Epilepsy, 122 of Nonepileptic* Abnormality and 101 Control Cases.** By Torsten S:son Frey. From the Swedish by Helen Frey. Acta psychiatrica et neurologica, Supplementum XLII. Paper. Pp. 172, with 19 illustrations. Stockholm, 1946.

**Investigations on the Basis of Rational Electrotherapy of Paretic Muscles.** By Svend Clemmesen and Erik Skinhøj. Acta psychiatrica et neurologica, Supplementum XLIII. Translated from the Danish by Axel Andersen. Paper. Pp. 53, with 19 illustrations. Ejnar Munksgaard, Nørregade 6, København, K, 1947

"Electroencephalographic Study of Neuropsychiatric Disorders" is a review of the literature of electroencephalography up to 1944 and a general discussion of technical difficulties in performing this diagnostic test. Types of electrode placements and difficulties inherent in the so-called indifferent electrode are discussed. The ear is considered a source of electrical activity from the nearby temporal lobe. Some of the artefacts that make interpretation of electroencephalograms difficult and quantitation of the procedure and its limitations are handled clearly.

In the author's series, over 20 per cent showed abnormal records. This is higher than in other series reported either in this country or abroad, and is probably explained by the method established to quantitate insignificant variations from normal. Handling of his clinical material makes dull reading. There is a plethora of tables and minutiae concerning all the data available. Positiveness about specific personality characteristic of patients with epileptic seizures is, of course, not accepted by the best neurologists and psychiatrists and his data in this regard are entirely inadequate.

Specialists in electroencephalography would find the volume of interest, but it is not recommended to neurologists or psychiatrists, because it contains far too much detailed material.

"Investigations on the Basis of Rational Electrotherapy of Paretic Muscles" actually contains three articles: (1) "On the Value of Electrotherapy in Treatment of Flaccid Paresis," (2) "On Choice of Form, Intensity and Duration of Impulse" and (3) "On Intensity Duration Curves (I/T Curves)."

In the first article there is an interesting discussion on electrotherapy in the treatment of paretic muscles, but it does not cover all the literature.

The authors give detailed wiring diagrams and descriptions of apparatus and data to show that the most effective type of electrical stimulation is the square wave of a duration of around 25 milleseconds, whereas round waves and pointed waves are not so effective. There is an important technical note on the ingenious method which the authors use in varying voltages mechanically by means of an arm on a potentiometer activated by movement of the muscles so that the myogram can be converted quantitatively to a recorded electric pulsation on the same screen, or bromide paper, as the stimulus current.

The third paper, contains well known data on strength duration curves. This confirms data already in the literature.

Both these books represent much effort on the part of these investigators during war years when equipment and funds were difficult to obtain. Criticism, therefore, should be tempered with an understanding of these handicaps. Both of these are worth having in a neurophysiologic laboratory for specialists in this technic.

**Peripheral Vascular Diseases: Diagnosis and Treatment.** By David W. Kramer, M.D., F.A.C.P., Associate Professor of Medicine, Jefferson Medical College, Philadelphia. Foreword by Edward L. Bortz, M.D. Cloth. Price, $8. Pp. 620, with 157 illustrations. F. A. Davis Co., 1914-16 Cherry St., Philadelphia 3, 1948.

This volume successfully conveys a practical approach to the problem of peripheral vascular disease. The author presents numerous illustrated histories to emphasize practical points. The discussion is excellent. General practitioners will find this an especially useful bridge to their approach to a neglected but large field of medical understanding.

# Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

## GIRLS' BASKETBALL

*To the Editor:*—Does playing basketball injure girls? Some physicians say that it is too strenuous. Should basketball be avoided during menstruation?

J. O. Helm, M.D., New Florence, Mo.

ANSWER.—Basketball can be played safely by girls if the following precautions are taken: (1) Examination by a physician to determine fitness for strenuous exercise, (2) use of girls' rules, which limit activities to zones on the court, (3) assurance that the contesting teams are reasonably well matched in age, size and training and (4) proper control and supervision.

Basketball with these precautions should not be more dangerous for the girl than for the boy. Though some girls can play basketball during menstrual periods without difficulty, many others will find it wise to omit such strenuous exercise for the first day or two of each menstrual period. This individual difference can be determined only by personal experience.

## ONYCHAUXIS

*To the Editor:*—A patient was seen with herpes zoster involving the sixth dorsal segment on the right. This was a minimal attack with little pain or discomfort. Her physical examination evolved no other abnormalities except for a condition of onychauxis involving all the nails of both hands and feet. There was pronounced hyperkeratinization of the nails and piling up in the typical irregular fashion. The basal metabolic rate was —18 per cent. She had taken thyroid previously with some benefit, but without effect on the condition of the nails. She disclosed that twice during pregnancies her nails gradually returned to normal and remained normal until two or three months after delivery. Then there was a gradual recurrence of the abnormal condition. Is there information available which might lead to a rational treatment of this condition?

Seth W. Ellis, M.D., Anderson, Ind.

ANSWER.—This case of onychauxis, like others of this type, is difficult to analyze completely for causation. The basal metabolic rate of — 18 per cent might point to a partial solution, although thyroid therapy has not materially helped. Dystrophies of the nails have been observed in cases of hypothyroidism, but the clinical picture is usually that of decrease of size, brittleness and longitudinal and transverse grooving. It is difficult to determine the cause of the decided improvement during and shortly after pregnancy. Naturally, an endocrine angle might be suspected, but nothing can be elucidated in a tangible way. Extraneous factors, as the application of nail polish, can be ruled out because of the concomitant involvement of the toe nails. In some of these cases the condition responds well to large doses of vitamins A and D. It takes six to eight weeks to effect improvement. At that time, thyroid medication can also be added if the improvement is slow.

## ALOPECIA AREATA

*To the Editor:*—A man of Greek extraction, aged 40 years, reported that he is losing hair in the beard regions and has been for the past two weeks. He has no other complaints. He has no loss of weight, and no apparent dermatologic condition at present. He has a history of syphilis some fifteen or twenty years ago, for which he received apparently adequate treatment. Physical examination reveals bilateral symmetric loss of beard on each side of the mandible for about 3½ to 4 inches (8.9 to 10.2 cm.) in area and getting larger. Blood sugar was essentially normal, as were the serologic reactions. An attempt to demonstrate fungous growth of the skin failed. What other possibilities exist? I have considered pituitary or adrenal syndromes as possibilities.

J. J. Stark, M.D., Belpre, Ohio.

ANSWER.—The patient apparently has alopecia areata affecting the beard only—a condition in which there is complete loss of hair in circumscribed areas without visible inflammation or scars. The cause of alopecia areata is unknown, though many cases give ample evidence to suggest a link between alopecia areata and the emotions. The prognosis should be guarded, though in most cases regrowth of hair does occur. The treatment is by stimulating measures, such as massage, ultraviolet rays or the application of strong medicaments, such as 10 per cent ammoniated mercury ointment. From time to time, treatment with roentgen rays is advocated, but if they are used, it must be with extreme caution by one skilled in the treatment of diseases of the skin with roentgen rays.

## DERMATITIS FROM RUBBER GLOVES

*To the Editor:*—Of two types of surgeons' gloves commonly used in hospitals —latex gloves and the cement type of gloves—the former is made from pure gum latex imported in liquid form, while the second type is made from high grade Para rubber from Brazil imported in the form of smoked sheets. A larger percentage of hospitals are using the cement type of glove rather than the latex glove, despite the fact that comparative tests show the latex glove to be superior in tensile strength, elongation and resistance to aging. The preference for the cement type glove appears based on the idea that latex produces a greater incidence of allergic reactions among surgeons and nurses. Our investigations of this subject have not revealed any reliable proof for this assumption. Do you know of any studies which have been made on the two types of gloves to show the relative sensitiveness of skin when in contact with them? We believe that hospitals could save money by purchasing latex gloves and feel that such a recommendation should be made provided that there is no scientific proof that a pure latex gum glove is more hazardous.

Hospital Bureau of Standards & Supplies, Inc., New York.

ANSWER.—Reports of studies on the incidence of dermatitis from latex gloves as compared with cement (dipped) gloves are not available. The problem of preventing dermatitis from rubber gloves is not always as simple as the substitution of latex gloves for dipped gloves, or vice versa.

Gloves may be made from natural rubber and natural rubber latex or from the synthetic rubbers and synthetic rubber latex. There are many types of synthetic rubbers differing widely in chemical composition. Buna S is a copolymer of styrene and butadiene. Buna N is a copolymer of styrene and acrylonitrile. Neoprene G.R.N. is polymerized chlorobutadiene, and there are several other types of synthetic rubbers. Dermatitis from synthetic rubbers is more frequent than from natural rubber.

Many accelerators, antioxidants, plasticizers and other chemicals are added to all rubbers to make them suitable for gloves, and they differ in chemical composition. They are the most frequent causes of dermatitis. Rubber goods are often cured or vulcanized by exposure to the vapors of sulfur monochloride instead of to heat, and the compounds continuously being formed on the surface of vapor-cured (acid-cured) rubber may cause dermatitis. There is no one cause of dermatitis from wearing rubber gloves.

For further discussion of the subject, you may refer to: Schwartz, L.; Tulipan, L., and Peck, S. M.: Occupational Diseases of the Skin, Philadelphia, Lea and Febiger, 1947, pp. 495-517, and Schwartz, L., and Pack, S. M.: Dermatitis from Wearing Apparel, J. A. M. A. **128**:1209-1217 (Aug. 25) 1945.

## IRREGULAR MENSES

*To the Editor:*—A 19 year old patient has never had regular periods. They vary from five to six weeks to three months. Her periods started at the age of 14 years. She is large for her age, and her parents are large also. The mother is fearful that there may be cause of underdevelopment of the female organs that might make it impossible for her to bear children. Should the condition be ignored as the girl is strong and healthy?

M.D., Nebraska.

ANSWER.—The patient deserves study from an endocrine point of view. She should have a pelvic examination to rule out pelvic pathologic conditions. This can frequently be done without one's disturbing the hymen by a one finger vaginal examination, a rectal examination and a rectovaginal examination. A narrow Pederson speculum gives adequate access to the cervix. A careful physical examination should be done with special reference to body figure, fat distribution, skin texture, presence of thyroid enlargement and breast size. Tests of basal metabolism and blood cholesterol should be done.

Possibly the drinking water is low in iodine; if that is so, sometimes patients need a little strong iodine solution to start with, and then the use of iodized table salt will give the thyroid gland adequate amounts of iodine for normal function. A basal body temperature chart, with daily morning temperature readings, and daily morning records of pulse rate records should be kept.

In the absence of any notable pathologic condition and even if the basal metabolic rate and cholesterol level are normal, one may safely give small amounts of thyroid, starting usually with ½ grain (0.065 Gm.) and increasing it gradually, with at least three to four weeks between increases in dosage, and making sure that the morning pulse rate does not run above 76 or 80 regularly. Often, with this pulse adequate protein and vitamin intake will regulate the cycle. Patients should be kept down to normal weight. Many of these patients have either anovulatory cycles or infrequent ovulations. A further check on ovulation can be made by suction biopsy of the endometrium. This is best done during the first hour or two of menstruation. Sex hormone therapy, in general, serves no useful purpose in these cases. In many of these cases the condition "straightens out" in later life, but in many it does not and it may be followed by or accompanied with sterility.

experiment?" I did not stop to point out the actual scientific impertinence of the question, but proceeded to answer it on the basis of its ethical and material implications. I replied, "There is no political and military leader under the sun who could order or otherwise compel me to perform an experiment contrary to my moral convictions." The attorney inquired, "So then you would be shot?" I replied, "Yes, and in so answering I feel certain that I speak for thousands of people who live in the United States."

### TWO CATEGORIES OF NAZI MEDICAL CRIMES

Elsewhere[2] I have pointed out that the medical crimes could be classified into two categories, namely, the nonexperimental and the experimental. In the same publication, I gave several examples of each, which need not be reiterated here.

*Nonexperimental Crimes; Mass Killings and Euthanasia.*—However, I should again point out that the mass killings—the gassing chambers—were related to the euthanasia edict secretly issued by Hitler in 1939. Paradoxically, German criminal law as late as 1945 held that euthanasia constituted murder and that "the law must take care not to shatter the confidence of the sick in the medical profession." Medical ethics pledges that physicians are conservators rather than destroyers of life. In my opinion medicine is doomed if it ever consents to take part or permits any member in good standing to take part in a program of euthanasia applied for socioeconomic purposes. If euthanasia is ever introduced for such purposes, medicine should have none of it. Medicine should let the persons responsible for introducing it do the killing. *Physicians are conservators, not destroyers, of life.*

*Crimes Experimental in Nature.*—Most but not all of the experimental crimes involved a search for the answer to a worthy medical question. They were criminal in that they were conducted on human subjects without their consent and in many instances without giving them as much consideration as is given experimental animals.

### ANALYSIS OF THE CAUSES OF THE NAZI MEDICAL CRIMES

As a medical scientist, I could not be exposed to these atrocities of a medical nature without trying to determine their causative background. There were three questions for which I believed an answer could be established by documentary evidence. I shall proceed to ask and answer these three questions and then consider a fourth question.

(*a*) *Why were the experimental laboratories established at the concentration camps under the Nazi-SS Division?* This was a natural question because the Luftwaffe, like our own Air Force, had its own experimental laboratories. The Wehrmacht, like our Army, had its experimental laboratories. Why then was an aviation laboratory established in the concentration camp at Dachau by the SS? The Wehrmacht had a typhus laboratory at Krakow. Why then was a typhus laboratory set up at Buchenwald concentration camp?

One reason was clearly stated in a letter written by Himmler. This letter stated in effect that the Nazi-SS physicians and scientists must have laboratories so that they could demonstrate to the German people and the world that they too could make discoveries, as well as the scientists of the universities, army and air force. This is definitely a political reason, and other evidence supporting this is in the Court records. Another reason given for establishing the experimental laboratories at the concentration camps was that results could be obtained more quickly and surely by doing the experiments on human subjects rather than on monkeys, dogs, cats and rabbits.

(*b*) *What sort of people worked in these Nazi-SS laboratories?* The documents clearly revealed that some persons—scientists and pseudoscientists—worked there for reasons of political preferment, others because they had a gun at their head, and a few because their scientific curiosity submerged their morals. Still others rationalized their behavior on the basis of the philosophy that the end justifies the means or that if euthanasia is right, as it has been so considered by some in England and the United States as well as in Germany, then it is right to take the life of political prisoners destined to die sooner or later.

(*c*) *Is there any wonder that nothing of scientific value came from these laboratories?* How can honest results come from such a dishonest situation? Because of the difficulties of medical research, it is not easy to get reliable results when all concerned are strictly honest. I shall cite only one illustration of the tragically dishonest behavior that went on in these concentration camp laboratories. This example occurred in the typhus laboratory at Buchenwald and was related by one of the witnesses. "Dr. Ding, being placed under pressure by the Hygienic Institute in Berlin, demanded that we produce large quantities of typhus vaccine for the fighting troops. From that moment, we produced systematically two types of vaccine. One type was perfectly harmless but had no value. This was produced in large quantities and sent to the front. A second type was produced in small quantities by the American method and was highly effective. It was used only for special cases, and we, too, who worked in block 50 were repeatedly vaccinated with the potent vaccine." Other examples of dishonesty are in the Court record.

A fourth question could not be answered by documentary evidence. Four factors to be mentioned were presumptively concerned. This question was: *What was the causative background of the experimental atrocities in which some 100 physicians were concerned?* Why in a number of cases were recent medical graduates directed to operate and develop surgical skill on prisoners who required no operation? I sought an answer to this question by discussions with German physicians, with prisoners, with German refugee physicians, with a Swedish physician and with American physicians who had received medical training in Germany. Several factors emerged from these discussions. The first factor which emerged was that the compulsory sickness insurance system of medical care after operating over a period of years led to a debased regard for the poor and underprivileged patient. Patients were too frequently treated as numbers rather than individual human beings with inalienable rights and dignity. A second factor was the ideology of the *Herrenvolk*, which morally is intimately related to a debased regard for the poor and underprivileged. A third factor was the practice of euthanasia, which when joined with the first two factors logically leads to the mass killing of the aged, the chronically ill, "useless eaters" and the politically undesirable. A fourth factor was frequently mentioned, namely, the welfare of the armed forces was the supreme good and anything which helped or might help the armed forces was right. This illustrates again the philosophy that the end justifies the means.

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[2] Ivy, A. C.: Nazi War Crimes of a Medical Nature, Federation Bull. 33: 133, 1947.

### MOST OF GERMAN MEDICINE REMAINED ETHICAL

It should be emphasized that the larger portion of German medicine remained ethical. It is also important to know that legitimate medical investigation was conducted in Germany during the war and, further, that a small group of physicians protested when they learned that prisoners were being used like animals in experiments in the concentration camps. Himmler called these physicians "traitors" and asked to be provided with a list of these persons with "Christian medical ideals."

### WHAT HAPPENED TO ORGANIZED MEDICINE?

As might be expected, many German physicians did not know what was going on in the concentration camps during the war. The reason for this was evident. Soon after the Nazis assumed power they took over the control of the organized medical profession. This control gradually became more and more severe. It was not long before free scientific discussion and criticism was suppressed, and scientific medical meetings became infrequent and were poorly attended. Contrary to the precepts of medical ethics, a student had to be or have been a member of the Hitler Youth Movement. A medical graduate could not obtain an internship unless he was a party member. The important lesson to be learned from this is that a political ideology can insidiously take over a medical profession of high ideals and subvert some of the members of that profession so that they will take part in atrocities and place that profession in a position where it is unable to protest effectively.

### IMPORTANCE OF MEDICAL ETHICS

My experience at the Nürnberg Medical Trials emphasized the great practical and humanitarian importance of medical ethics. It caused me to realize that my medical education in that regard had been deficient and that medical education today is negligent in teaching the young physician the relation of the ethics of medicine to the economics of medicine. The instruction to the layman has been neglected even more. The layman cannot be expected to understand the fact that medical economics is based on medical ethics, if the young physician does not understand it. It is difficult for many laymen and some young physicians to understand why an attempt to introduce commodity economics into medical practice has led to conflicts and difficulties. More instruction regarding the meaning of medical ethics should be given to the medical student and the layman.

### THE CONTRIBUTIONS OF HIPPOCRATES

Though I had been in medicine for thirty years, I realized, for the first time at the Nürnberg Trials, the full meaning and importance of the contributions of Hippocrates and his school to medicine and human welfare.

Hippocrates contributed the scientific philosophy of medicine as we know it today when he taught that disease is due to material causes and not to evil spirits, witches or the wrath of gods. He contributed a technical philosophy when he taught that diligence, accuracy, thoroughness in observation and skill were essential for success in the practice of a science and art of medicine. He apparently realized that a scientific and technical philosophy of medicine could not survive through the ages unless it was associated with a sound moral philosophy. One cannot conceive of a sound society with medicine that does not have a sound moral philosophy.

### A MATERIALISTIC SCIENTIFIC AND TECHNOLOGIC PHILOSOPHY HAS NO SURVIVAL VALUE

Similarly, I believe that no nation can expect to survive on the basis of a materialistic scientific and technical philosophy alone. Fascism and national socialism failed because they were devoid of a sound moral philosophy. Marxian or materialistic communism is doomed to fail because it has no moral philosophy. These totalitarian forms of government place the welfare of the state above that of the individual. They fail to consider the historical fact that every form of totalitarian government has sooner or later succumbed. They fail to consider the biologic fact of the "primacy of the individual." They fail to consider that the rest of the world suspects, resents and will line up against the super-race, or the group that would rule the world for its own aggrandizement or the allpowerful nation that takes more than it gives. We must accept the premise that human beings are in a practical sense free agents. The ultimate goal in social welfare is the maximum development of the individual. It would seem self evident that everything of value in human society depends on the opportunity for the development accorded to the individual.

### THE INDIVIDUAL COMES FIRST IN MEDICAL ETHICS

Medicine or medical ethics concurs in placing the emphasis on the individual. Simply stated, medical ethics, or the Oath of Hippocrates, is the Golden Rule of the profession. It states how one physician would like to be treated by another physician and pledges that such ethical treatment should be extended to the patient. For twenty-two centuries, or since the formulation of the Oath of Hippocrates, the principal concern of medicine has been "the welfare of the patient." Of course, the prime social reason for the existence of the profession is "the service it can render to humanity" by maintaining health and postponing death. But this social purpose, except for certain aspects of preventive medicine, can be achieved only by dealing with the individual. The physician is obviously the only person who can be morally and legally responsible to his patient, and, conversely, the patient is morally and legally responsible to his physician. This physician-patient relationship can freely operate only where the free choice of a physician or clinic by the patient, and the free choice of a patient by the physician, except in an emergency, are unrestricted. Obviously a third party or agency cannot assume this confidential personal relationship and the moral responsibility involved.

### IF MEDICAL ETHICS ARE ABROGATED CAN MEDICINE SURVIVE?

Though a reverence for the life of the individual is the basic aspect, the doctor-patient relationship and the free choice of a physician represent the realistic aspects of the moral philosophy of medicine. It is important to realize that these and a few other aspects of the ethics of medicine have survived for twenty-two centuries, and the chief reason they have survived is the enduring realistic fact "that a sick person requires the care of a specially trained person and that the sick person must trust and have a reason to trust the specially trained person." It follows presumptively that as long as this personal relationship exists in the care of the sick, the same basic medical ethics are essential for the survival of the profession and the welfare of the sick.

Therefore, I believe that it is the duty of every physician to oppose any plan of medical care which would immediately or ultimately jeopardize the doctor-patient relationship and the patient's free choice of a physician or clinic, or lead to competition between physicians on the basis of fees rather than the quality of service or remove the control of the practice of medicine from physicians who are subject to the ethical code of medicine.

### STATE MEDICINE AND COMPULSORY SICKNESS INSURANCE INTRODUCE DETERIORATING EVILS

Most systems of state medicine and compulsory sickness insurance introduce such deteriorating evils. It has been argued that these forms of medical practice lead ultimately to a deterioration in the morally responsible attitude of some physicians. This argument has not been seriously accepted by many laymen and by some physicians. These persons know that, at the present time under the existing medical code, the great majority of physicians are keenly aware of their moral as well as legal responsibility to their patients. They know that the physician is theoretically pledged to aid any sick or injured person, friend or foe, rich or poor, powerful or weak. They know that the ethics of the profession teach that no matter what *system the physician is compelled to work under*, the physician should do his best for the patient. In fact, the American Medical Association has said, in speaking against the evils of state medicine and compulsory sickness insurance, "If these (evil) things are embodied in legislation and become a part of the environment within which the profession must practice, there is scarcely any alternative except to continue to give the best service possible under such handicaps."[3]

But can these highly laudable ideals be maintained under a code of compulsory health insurance at the level at which they are maintained under the present medical code and practice systems? The evidence with which I am acquainted indicates that the answer to that question is NO.

I am convinced that the system of state medicine in Germany was in part the cause of the deterioration in the quality of German medicine and of the medical atrocities. But, as I indicated previously, state medicine was not solely concerned; there was also a general decline in moral and religious values, which probably precipitated a multitude of atrocities. How long medical ethics must be abrogated to lead to a significant deterioration of medical care is uncertain. Likewise, how long churches and other institutions standing for morality must be removed from a population to produce a Sodom and Gomorrah is also uncertain. It took the Russian Communists only about fifteen years to learn that unrestricted abortion was not good for Soviet Russia. Hippocrates knew that twenty-two centuries ago. Some who have visited Russia know that one can obtain "extra" medical and dental service for a "fee on the side."

These points are made to show again that there is more to medical care than scientific knowledge and skill. They also show that the environment in which the physician is raised and trained, as might be expected, has an effect on him and his activities regardless of the ethics of medicine. Scientific knowledge and skill in medicine have to be cultivated, nurtured and protected. Likewise, the moral and honorable aspects of medicine have to be cultivated, nurtured and protected. This is obviously accomplished more easily and successfully in a favorable than an unfavorable environment.

No group of citizens is more aware or can possibly be more aware of these facts than the men of experience and wisdom in the medical profession. The law can punish gross moral irresponsibility, but this is not enough. Who can cultivate, nurture and protect all of the aspects of medical care better than the medical profession? The profession is morally responsible for providing the public with the best possible medical care. The profession would be derelict in its duty if it yielded without vehement protest a major part of this responsibility to any other group, especially to one whose business and political ethics might be substituted for medical ethics.

Why should any government desire to change a system of medical practice against the recommendations of the large majority of the leaders of one of its most noble and conscientious professions? Medicine naturally resents any implication of its unwillingness to act for the best of the health welfare of the people. Medicine has cooperated and will continue to cooperate to solve health problems. But, because of its scientific training, it must be convinced by facts that a real problem exists. Many lay persons have not been trained scientifically and obviously do not know the meaning of scientific proof. Also, if a problem does exist, the profession must be certain that the proposed remedy will do no harm. The medical student and the physician, from the time he enters medical school until he retires from practice, is repeatedly told that his treatment should do no harm. This precept, introduced by Hippocrates, is ingrained in the mind of the profession, and only a misguided public would want its physicians taught any other therapeutic principle. Hence, the profession is naturally very cautious that a treatment proposed as a cure for a deficiency in medical care will not do more harm than good. Medicine, however, being an experimental science, like any other science, is willing to experiment on a small scale. The experimentation must be necessary, however, because living things are involved, and unnecessary experimentation on living things is cruel and brutal.

### CONCLUSION

Regardless of the relatively excellent and steadily improving health of our people and the leadership which American medicine holds in world medicine, a better distribution of expensive diagnostic and therapeutic facilities is needed. This need, I believe, is recognized by the majority of physicians and is acutely felt by many of our citizens at the present time. In meeting these needs the great progress made under the present system of medical practice must not be forgotten or underestimated. Any new proposal must be carefully scrutinized lest it lead to a deterioration of medical care. The profession should oppose any false remedy or temporizing proposal. It is the moral duty of the profession to do so.

Any new plan for medical care or any significant change in the existing plan of medical care must by all tests preserve inviolate a reverence for the life of the individual, the physician-patient relationship, the patient's free choice of a physician or clinic, the free enterprise system and the vesting in the profession of a major part of the responsibility for medical service and its financial reward. Unless this is done, I am convinced that the American public will have sold their medical birthright for a mess of pottage.

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[3] Economics and the Ethics of Medicine, Bureau of Medical Economics, Chicago, American Medical Association, 1941.

## MEDICAL CARE OF THE NATION IN THE EVENT OF ANOTHER WAR

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It is now barely a year since the Council on National Emergency Medical Service outlined its concept of its task to the Board of Trustees and the House of Delegates and started out toward its accomplishment. The survey that the association had just completed through the magnificent work of the Bureau of Medical Economic Research at the behest of the Bortz committee had pointed up in bold relief some revealing facts concerning the excessive procurement of civilian doctors for military duty in the recent war and, particularly important, some astounding facts concerning their incomplete and at times inept utilization.

Through the insatiable demands of the military establishment the civilian population was stripped of its physicians to a degree that invited national disaster. There remained but one physician, in many instances well along in years and in some even recalled from retirement, to take care of 1,500 civilians presenting all the many ills that beset people from the cradle to the grave. Had an epidemic occurred of the proportions of that afflicting the nation in World War I or had we suffered civilian casualties of the nature and extent anticipated if war is to come again, such an unbridled withdrawal of doctors from the factories, from farming communities and from the many other war-essential civilian groups would have undermined national health and morale with just as severe consequences as if our armies had been defeated in the field.

The responsibility for this dangerous withdrawal of civilian physicians rested largely on two things. Until Procurement and Assignment got under way in the middle war years, there was no authority in government even mildly interested in the medical needs of the civil population, and by then the damage had been done. More responsible still was a table of organizational figures and a pattern of deployment and utilization of medical personnel within the military that dated back to World War I and in some respects even to Civil War days. But little of the technologic advances of modern medicine had taken root in the services and nothing whatever had developed in the way of interservice coordination in care of sick and wounded. No wonder, then, that utilization of personnel was at low ebb and requirements inordinately high. No wonder, either, that the doctors of America are left today with what borders on an abhorrence for any part of military medicine.

Confronted with this situation, the Council on National Emergency Medical Service saw at once that two major objectives must be attained before the medical and health aspects of a program of national defense ever could be adequately developed. Requirements of medical personnel by the military establishment must be brought in balance with civilian needs. And to accomplish this the medical departments of the armed forces must be reorganized to make the best possible use of the medical personnel available. The Council was composed of men who had served in uniform, men who were still a part of the military organization of our country, men naturally sympathetic to the problems of the services. I reiterate that simply to tell our Army and Navy friends again and again that the critical and questioning attitude which the Council has displayed has not come naturally. It has had to act on the genuine apprehension that doctors feel for the health and security of this nation as the clouds of war again gather. It knows the sharply limited medical man power with which the nation will have to get along, whatever comes. It knows that another war would bring quick and stark disaster if the mistakes in procurement and utilization of the last war are repeated.

To avoid this, two developments within the Defense Establishment seemed to the Council to be essential. First, there must be a permanent board of top flight civilian physicians working arm in arm with the Surgeons General at high enough level within the military establishment to supersede the uninformed and often arbitrary authority of command. In no other way can the important matter of health care of fighting personnel be kept under medical control. In no other way can the medical departments of the armed forces have the benefit of the highly developed technical knowledge of civilian medicine. In no other way can the doctors of the nation have a proper part in their own destiny as the threat of war drives them into uniform. To be and remain genuinely effective this joint board must be directly advisory to the head of the military establishment, the Secretary of Defense. Second, there must be a group of civilian physicians at top level within government having the responsibility of weighing the medical man power needs of industry, agriculture and the civilian population at large, of research, public health work and medical education against the requirements of the military establishment. Under the National Defense Act of 1947 such a Board would fall logically within the structure of the National Security Resources Board, whose duty it is to advise the President on the utilization of all of the war-important resources of the nation.

Accordingly, the Council advised the Board of Trustees and the House of Delegates of the urgent need of these two boards within the Defense Establishment. The recommendations were adopted at the June session of the House of Delegates, and the Association promptly urged their appointment upon the President, the Secretary of Defense and the Chairman of the National Security Resources Board. I am particularly happy to add, too, that both of these recommendations apparently enjoyed the wholehearted and active support of Surgeon General Bliss of the Army, Surgeon General Swanson of the Navy and Surgeon General Grow of the Air Force, as well as those high in their service.

Word has been received from the Office of the Secretary of Defense that on November 9 Mr. Forrestal officially approved the appointment of a joint civilian-military board advisory to him. Invitations have been extended and public announcement of this new board and its terms of reference awaits the final acceptance of all who have been invited to serve. With these two boards appointed to serve officially in the Defense Establishment one could hardly doubt, it seems to me, that the medical aspects of the defense plans of the nation will stay in proper balance and that in the future doctors in uniform will be kept busy and at tasks for which they are peculiarly trained.

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[*] Presented before the Conference of State Medical Association Secretaries and Editors, St. Louis, Nov. 29, 1948.

Before leaving this scanning record of the early work of the Council may I pay tribute to the Secretary of Defense. With several others, and then only for a brief spell, it was my privilege to speak personally with Mr. Forrestal but once nearly a year ago. From time to time since then, however, his keen discernment has been apparent in matters that have been of interest to this Council, leaving each of us with the conviction that at least the medical aspects of national defense are in understanding and able hands. The profession might well wish and work for his retention during these years of threatening war.

That brings me up to date and to the heart of my assigned subject.

### A SPECIAL DRAFT FOR DOCTORS?

No one, it seems, has better than a gambler's guess as to whether war will again break upon us. War or no war, however, the country is embarking on a program of adequate military preparedness. A selective service act is already in force, and the Army, Navy and Air Force are presently in the throes of rapid expansion. That physicians are needed as part of that expansion is perfectly obvious, and many doctors are going into uniform in the months ahead. Make no mistake about that. This nation is in the habit of providing excellent care for its fighting men and we, of all people, would not have it otherwise. The fact that physicians always have volunteered for military duty and served in far, far greater proportionate numbers than those of any other walk of life is proof of that. Now once again, as the clouds of war thicken, the profession is faced with the moral and civic responsibility of seeing that there are doctors aplenty for the needs of the young manhood of America marching into service. If we are to be true to our heritage this movement must be voluntary, and it must be encouraged and guided by our great national association. Shame on the sons of Aesculapius if they ever bring this country to the necessity of a special draft. And double shame on this nation and its military men if, thoughtlessly and needlessly, they load its doctors with the onus of a special draft as a reward for the unusual sacrifices that they made in the last war.

Just how to avoid this impending debacle is a matter to which both the profession and the military must at once address themselves. It has implications that are far from reassuring to either party. The military might well recall the dissatisfaction and even disgust that were engendered in their medical reserves over the use that was made of them while in service and then contemplate the morale that would prevail in a medical corps drawn to that same sort of service and by an offensive and thoroughly discriminatory draft. Does the military desire that kind of a medical officer? On the other hand, the profession might well weigh the implications of a special draft of doctors—a draft not alone to treat soldiers and sailors but to supply medical care to several surprisingly large groups of nonmilitary personnel, veterans among them. Why not, then, another draft of doctors for service in our veterans hospitals? The Wagner-Murray-Dingel bills have been our nightmare for years, and here we stand on the very threshold of a form of Simon-pure federal medicine that would make monkeys out of the Falks and Cohens and Davises. There is no need to labor the point. Neither the military establishment nor the medical profession can let this thing happen. And I hasten to add that those high up in the medical departments of the three services are fully alert to the danger—far more so, I believe, than is our profession. You may disabuse your minds at once if you believe that drafting doctors is their choice.

### INCREASING THE FLOW OF MEDICAL VOLUNTEERS

Late as the hour is, it still is not too late to start a flow of medical volunteers into the services in numbers sufficient to fulfil all genuine needs. Our military friends have been critical of the apparent indifference of this Council and the Association to their estimated needs. They have grown skeptical of the possibility of meeting their requirements in any other way than by draft. They have underestimated, I am sure, our anxiety over their problem and have failed to properly credit our method of approach to its solution.

At long last there now is a committee of civilian physicians officially advisory to the National Security Resources Board. At long last a joint civilian-military medical board is being created within the military establishment advisory directly to the Secretary of Defense. The establishment of these two advisory groups long has been declared essential before the profession ever would dare to cast lot with the military establishment in any program of procurement of medical personnel. Now that they have been established the whole problem turns to ways and means of helping the armed forces obtain the doctors they need.

This help can take two forms. Of course, the organized profession can and must undertake an active campaign at once to inspire large numbers of needed enlistments. More of that later. Of far greater importance, simply because it goes to the very heart of the problem, the profession both in and out of uniform must cooperate in critical study of the drawbacks to military medical service and join in a vigorous and positive program to make military medicine more attractive to doctors. Gentlemen, there never will be a real solution, nor will the level of medical and health care within the services be of the best, until medicine has been elevated to a position of proper importance within the military establishment and then purged of those of its objectionable features that make it necessary almost to rope and hog-tie a doctor to get him into uniform and keep him there.

Completely outstripping everything else, the one blight that rests deadeningly on the medical departments of the armed forces is their utter subservience to command. No one wearing the caduceus on a uniform has escaped this withering feeling—no one from the Surgeons General to the most junior of the services. One could dwell all evening on the details of this depressing situation. One could dwell, too, on the grave danger that lies in a system in which final judgment in matters affecting the health of fighting personnel remains subject to the whims of an officer of the line. I wonder how many of you have seen Circular No. 342, Department of the Army, dated November 1948. In the very face of the threat of a war, the medical and health aspects of which never before have been equaled, this most recent reorganization of the Department of the Army actually forbids the medical department direct access to the Chief of Staff and places the Surgeon General among the Technical Staff and Services under the direction and control—yes, the direction and control—of the Director of Logistics. Now it may well be that in Civil War days when the medical department of the Army consisted of a few hastily acquired contract surgeons, medical service to the troops was simply a matter of logistics. But if modern medicine is to develop within the Defense Establishment as it most certainly must do in this age of atomic and biologic instruments of warfare, the position of the Surgeons General must be at top, not bottom, level. Last June the House of Delegates urged upon the President and Congress that the Surgeons General be elevated in rank and authority to the level of the Chiefs of Staff and the Chief of Naval Operations. Failing action, the same resolution will be introduced in this session and presumably again and again until the advice of American medicine is finally heeded.

There are many promising problems to challenge the thinking of a board of civilian physicians working arm in arm with the Surgeons General under the Secretary of Defense. I am sure there is none, however, that holds the same possibilities for great and lasting good that lie in seeking proper recognition of the importance of medicine in the armed forces of the future. Let us hope that that will be one of its major interests.

A well integrated program of career guidance within the services, offering opportunity for specialized training to certain properly selected medical personnel, is another most promising move toward improving the quality and the attractiveness of medical practice in the services. At the June meeting of the House of Delegates the Association went on record encouraging this forward looking development. It is regrettable to have to note, however, that its primary purpose of training specialists is becoming confused with personnel procurement and with a bureaucratic expansion of large military hospitals. The numbers and types of special trainees presently contemplated seem to go far beyond any reasonable needs of the regular services. And insufficient consideration seems to have been given to the possibilities that lie in carrying out this training program using civilian facilities already available and long experienced in that sort of work. In this connection it should be pointed out that young civilian physicians justly resent being asked to serve with the military and forego their own plans for special training just so that others within the services can become specialists. Particularly it should be pointed out that civilian physicians justly resent being asked to make the sacrifice of a tour of military duty on the basis of requirement figures that are inflated by a greatly expanded patient load made up of veterans, dependents and other nonmilitary personnel accepted in military hospitals to provide clinical material for their special training programs. This newly conceived special training program of the services is another important matter to be studied out carefully at the level of the Secretary of Defense between the Surgeons General and the leaders of civilian medicine. The program is much too worthy and much too essential to the future of military medicine to be placed in jeopardy by lopsided planning.

There are a number of other major matters that this joint board must interest itself in to improve the efficiency of the medical departments. Far, far better interservice coordination in the use of medical personnel and facilities can be attained. The Surgeons General working on the Hawley board have made a substantial beginning, but there is much yet that must be done. Genuine accomplishment along this line would reduce notably personnel requirements, improve materially the caliber of health care and enhance immensely the attractiveness of a medical career in all branches of service. Rank and pay commensurate with talent rather than with age in grade would do more to attract able young men to the services than most any other single thing. The American Medical Association lent substantial aid in the last Congress to secure an over-all increase of $100 a month in pay to medical officers, but much more must be done along this line to attract doctors to a career in the services. At least in times of peace, there must be more security of station and duty. And there are many other ways in which the effectiveness and the attractiveness of medical service within military can be improved to help meet the serious procurement problem facing the medical departments.

While there now seems great promise that many of these long needed changes are to be given fair consideration, they cannot be accomplished overnight. Meanwhile the nation is confronted with the threat of war, and its armed forces are faced with a serious problem in medical officer procurement, a problem that cannot await the careful and necessarily slow accomplishment of these important changes. The services have a genuine and urgent need for doctors and the American Medical Association and all of the state medical associations represented here today have a real responsibility in the matter. Of course, we shall remain critical of wastage of medical talent in uniform and we shall continue to protect the interests of the civilian population by questioning unreasonable requirements of doctors for the services. But America has determined on a program of immediate military expansion to meet the threat of a war. This very minute the flower of its youth is marching to battle stations with who knows what before it. There never was and there must never be a time when those of our profession remain unresponsive to the needs of men who are ordered to fight and die for our country. We have got, today, to face the fact that some of us again must leave home and practice and march wherever and through whatever those of the military must go.

I think I need not tell you that the Council on National Emergency Medical Service, the Trustees and Officers of our Association have been extremely busy for a year now acting on the determination of the profession to have a responsible part in the medical affairs of the military establishment. There are high ranking service men in this room who can testify to that. Indeed, the record itself tells the story. The Congress last spring refused to give the military establishment the unbridled authority over the profession that it sought. Several months ago a group of able physicians was appointed to the task of advising the President through the National Security Resources Board as to the over-all medical needs of the nation. And now civilian medicine has been officially established on equal footing with the Surgeons General and advisory directly to the Secretary of Defense on medical matters within the Military Establishment. Those are the major objectives that American medicine set out to accomplish as the mistakes of the last war became clearly evident. They are recited here so that doctors and public alike may have assurance that a proper and much needed liaison has been established between profession and government; that the medical departments of the Army, Navy and Air Forces are to be less wasteful of medical talent, more efficient and more attractive to doctors and, finally, that a proper balance is to be struck between civilian and military needs if a war is to come again.

There is every promise that the present requirement figures will be materially reduced in the coming months through the activities of these two advisory boards. At the same time it is perfectly evident that the steady increase in troop strength under selective service and the steady loss of A.S.T.P. and V-12 doctors who are terminating their tour of obligated duty will combine to create a shortage that soon will become genuine and intolerable. The point will be made clear by stating that the Army alone will lose 2,150 of its present medical officers the first eight months of next year and all of that in the face of a steadily expanding troop strength. Under these circumstances, I should dislike very much the task of appearing again before the Armed Services Committees of Congress placing the American Medical Association in opposition to a special draft of physicians if voluntary enlistments continue at their present snail's pace. On the other hand I firmly believe that if a respectable flow of volunteers can be developed in the meantime, special medical draft legislation will never reach the coming Congress.

To those of you of our state associations and to the doctors in your state whom you represent, the choice is yours. It takes no prophet to sense the alternatives. Either our organizations set their strong backs to the wheel or we will be yanked out of our rut by the heavy machinery of government. Either the young men of our profession—those who escaped service in the recent war and especially those who were favored by deferment to finish their education—will awaken at once to a civic duty to which they are morally bound or they will bring the ignominy of compelled service upon themselves and their profession.

Which shall it be?

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# PHYSICIANS IN AN ATOMIC WAR

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With the explosion of the first atomic bomb in New Mexico and thus the demonstration that the chain reaction is practical as a weapon of war, physicians and biologic scientists generally became an integral part of the development. To the many well known causes of medical casualties encountered in war and peace, such as blast injuries, penetrating wounds and thermal injuries, was added another—that of radiation injury.

Both the preclinical and clinical scientists are rapidly becoming acquainted with the biologic effects of radiations because (1) new types of penetrating radiations for therapy of cancer are being developed, radioisotopes are being more generally used for therapeutic and diagnostic purposes; both are being used as tools of fundamental research; and (2) the potential danger of actual atomic warfare makes knowledge of the biologic effects of radiations and methods of treatment an essential part of a physician's training. As a result, courses are being offered by universities, the Navy and the Atomic Energy Commission installations in order to make this knowledge more generally available.

Recently a series of stories appeared in the newspapers throughout the country on the picture which would obtain if atomic bombs were dropped on such cities as Chicago and New York. These stories were released at the time that a committee of medical experts met in Chicago to discuss preparedness for the eventuality of an atomic war.

The experiences gained at Hiroshima and Nagasaki have established certain facts which permit the formulation of certain broad principles to be followed if large cities are bombed. In the first place, it can be assumed, for the purposes of this discussion, that the amount of induced radioactivity or contamination with radioactivity in the vicinity of an explosion of an atomic bomb will be negligible. Therefore, teams of medical workers, etc., can immediately enter the area. This essentially reduces the problem to the treatment of external irradiation injury, thermal burns, blast injuries, penetrating injuries—in combination or alone. It is also clear that at the present state of our knowledge a large fraction (let us assume one third) of the population of a bombed city will be killed outright or will die in days to weeks no matter how soon they are brought under medical care. Another third of the population will survive if medical care is quickly and adequately provided, and the remaining third have a fair chance of surviving without medical aid unless epidemics break out or unless disruption of transportation and other basic facilities make it impossible to provide food, water and shelter. These considerations have led some persons who have given thought to a possible atomic bomb attack to suggest that all large cities be organized and mobilized roughly in the following way:

1. Facilities should be constructed on the outskirts of all large cities to provide hospital care, facilities for examination of ambulatory casualties and emergency rations for large numbers of persons.

2. One should plan for well trained and strategically placed workers to police and evacuate casualties, and, in general, operate as the workers in bombed English cities did during World War II.

3. One should provide for persons to be on the scene who are capable of calculating the center of the bombed area and determining the radius from the center in which, from the medical point of view, evacuation is essentially useless, the perimeter of the area in which evacuation is worth while and the perimeter beyond which little immediate medical attention is necessary. Such calculations can be made by reading previously located radiation monitoring instruments, by observations of the immediate biologic effects on persons within the bombed areas and others. Obviously the degree of destruction in a given city will depend on how close to the center of population the bomb explodes, the altitude at which the bomb is detonated and the size of the bomb. It seems likely that future atomic bombs will be no smaller and in all probability will be larger than those used at Nagasaki and Hiroshima.

Assuming that the medical profession and the military and civilian population of cities are organized adequately from the standpoint of preventing chaos, are able to evacuate casualties, and facilities are available for the care of the casualties, how does one separate the persons who require immediate hospital care and who

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tonium Project" under the Manhattan District, is now in the Department
of Medicine, University of Chicago, and Argonne National Laboratory.
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fornia Hospital, San Francisco. Dr. Allen, formerly with "The Plu-
tonium Project" under the Manhattan District, is now in the Department
of surgery, University of Chicago, and the Argonne National Laboratory.

have a chance of survival from those who are beyond hope of survival even with the best care? If, in such an emergency state, as physicians we accept the calculations of the physicists, health physicists and other experts who presumably will be on the scene and arbitrarily accept no casualties from a certain determined area of the bombed city, then part of this problem at least would be answered for us. Even with such an arrangement in force, however, the number of persons seriously ill with thermal and radiation injuries would be staggering. In addition, we would have to cope in one way or another with a large group of persons who required only minor immediate treatment but who might later have serious complications of radiation injury.

Enough experience has already been had with thermal injuries to make a rapid selection of those who require hospital care. Thermal burns and radiation burns are much alike in appearance, and treatment is similar. The treatment of injury from massive doses of penetrating radiations to the whole body is not unlike the modern supportive treatment given for extensive thermal burns. Although exact or entirely reliable information is not available on the amount of total body irradiation human beings can stand, it is probably roughly as follows:

Fifty to 200 r would produce slight nausea, a transitory mild leukopenia and thrombopenia with complete recovery.

Two hundred to 400 r would produce a moderately severe leukopenia, thrombopenia, mild transitory anemia, severe nausea and vomiting and diarrhea, and moderate hemorrhagic manifestations. Death would occur in a relatively small percentage of these persons, whereas the majority would recover spontaneously with symptomatic treatment only.

Exposure to 400 to 600 r would produce a seriously ill person with anemia, leukopenia, thrombopenia, hemorrhagic manifestations of varying severity, severe nausea and vomiting and bloody diarrhea. Even with excellent supportive treatment, one might expect less than 50 per cent of the persons in this group to survive. With doses above 600 r, on the basis of present knowledge, only a relatively few persons would survive even with the best of medical care.

As has been said, persons with severe radiation injury would likely have severe thermal burns as well. The irradiation and thermal injuries might be roughly classified under local and systemic effects.

The local effects of thermal burns such as edema, erythema and blister formation would appear within the first few hours. If such severe skin manifestations were to appear in the first few hours and could be proved to have been induced by radiation, the prognosis would be hopeless. However, the separation of thermal and radiation burns within the first few hours after such a catastrophe would be difficult or impossible. Therefore, if no penetrating wounds complicate the clinical picture, the skin should be treated as one treats thermal burns. The erythema, edema and weeping of the skin occurring after lethal or semilethal doses of penetrating radiation differ from thermal burns in that they may not appear for a week or more and then become progressively worse. Such systemic effects as those resulting from the loss of plasma, the depression of hemopoiesis, and infection are common to both. Therefore, the liberal transfusion of plasma is indicated from the outset of treatment. In severe cases at least 1 liter of plasma would probably be given daily. Daily whole blood transfusions will also be necessary to combat anemia; antibiotics and the like are indicated to combat infection, which is probably inevitable in the face of severe leukopenia secondary to destruction of bone marrow and lymphatic tissue. No specific treatment is presently known to combat radiation-induced leukopenia. Blood transfusions will, to some extent, help to combat serious hemorrhage. The use of specific antiheparin substances such as toluidine blue or protamine sulfate may be indicated. Because of the severe gastrointestinal inflammation and edema, the ability of such patients to take oral nourishment is minimal. As a result, practically all nourishment must be given parenterally. Sedation is also of great importance. One feature of radiation burns which differs from thermal injury is the fact that in radiation burns pain may be severe and persists for days. The use of morphine, codeine and other sedatives is therefore essential. There are many other phases of treatment which might be considered, but this brief account at least indicates the enormity of the medical problem involved in atomic warfare.

### RESEARCH WORK ON RADIATION INJURY

Not only is the research now being carried on in physics and chemistry on atomic energy being directed toward military application, but much effort is being expended to create peacetime applications such as heat and power. The research directed toward the medical and biologic effects of radiation has also been given great emphasis. Actually, this subject has received attention from the medical point of view since the pioneer work of Heineke in 1903.

The blood-forming tissue appears to be the most sensitive to radiation of any organ or organ system in the body. The penetrating radiations of significance from the standpoint of whole or partial body radiation from an external source are gamma rays, roentgen rays and fast neutrons. Qualitatively the biologic effects of these radiations are comparable. A dose of roentgen rays or fast neutrons or gamma rays given to the whole body which kills half of the exposed animals ($LD_{50}$) will, for example, produce a comparable degree of destruction of the hemopoietic system. The radiation sensitivity in the main cellular constituents of the blood may be listed as follows in terms of increasing sensitivity: erythrocyte, plasma cell, megakaryocyte, granulocyte, orthochromatic erythroblast and lymphocyte.

Some of the more recent work on the biologic effects of radiation which has already proved to be of some practical clinical value concerns a radiation-induced blood coagulation abnormality as reported by Allen and Jacobson.[1] Massive doses of radiation produce a prolonged clotting time (Lee White), and in some instances the blood may actually remain incoagulable for a period of twenty-four hours or more. This anticoagulant is probably heparin or a heparin-like substance, since it is reversible in vivo and in vitro by the administration of toluidine blue, protamine sulfate and other antiheparin substances. This defect appears in some animals even before platelets have been significantly reduced and in the presence of normal prothrombin, calcium and fibrinogen values. The value of these antiheparin substances in combating radiation-induced hemorrhage has already been demonstrated clinically.

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[1] Allen, J. G., and Jacobson, L. O.: Hyperheparinemia: Cause of the Hemorrhagic Syndrome Associated with Total Body Exposure to Ionizing Radiation, Science **105**: 388 (April 11) 1947.

Another investigation in rabbits directed toward a practical approach to radiation injury was recently reported by Jacobson and others.[2] It was found that erythropoietic tissue in the bone marrow and spleen is definitely protected significantly from radiation injury if stimulated to massive production prior to irradiation. In these experiments erythropoiesis was stimulated by administration of phenylhydrazine or venisection.

These brief statements on research in progress are only intended to indicate that research work of a fundamental and practical nature is under way. The Atomic Energy Commission especially is subsidizing and stimulating work in this field. The medical applications of radiations and radioisotopes in diagnosis and therapy are receiving considerable attention. At this time only a relatively small number of the radioisotopes are practical and may be listed as follows:

Radiophosphorus ($P^{32}$): Oral or intravenous administration in the treatment of lymphomas, leukemias, polycythemia rubra vera and carcinoma mestastatic from cancer of the breast.

Radiogold ($Au^{198}$) and the Radiomanganese ($Mn^{54}$): Used in colloidal form in treatment especially of leukemias.

Radioarsenic ($As^{76}$): Used in the treatment of lymphomas and leukemias.

Radiosodium ($Na^{24}$): Used in the treatment of lymphomas and leukemias particularly and in diagnosis of vascular changes in the extremities.

Radioiodine ($I^{131}$): Used in the treatment of hyperthyroidism and carcinoma of the thyroid; of some value in tracer amounts in determining the functional state of the thyroid gland.

In all the discussion up to this point, no mention has been made of the possibility of using large quantities of radioactive materials in atomic warfare. A discussion of this would in itself require a review of our knowledge regarding the biologic effects of all the radioelements formed in the fission reaction. These elements number about thirty and are largely composed of radioelements which localize in bone. The fear that large quantities of radioactive isotopes might be dropped on large cities, in water reservoirs and the like is as frightening as the thought of bacteriologic warfare. Whole cities could be made uninhabitable and water supplies could be hopelessly contaminated by spreading radioactive isotopes by airplane. Depending on the concentration of isotopes dropped under such circumstances, we would be dealing medically with externally originating radiation to the whole body and to radioactive elements deposited within the body through inhalation, ingestion and the like.

It is interesting that the mammalian hemopoietic system has some measure of defense against radioisotopes which localize in bone.[3] For example, radiostrontium, which is physiologically interchangeable with calcium, is largely deposited in the skeleton when administered to the experimental animal. Although deposition in bone is general, the greatest concentration of the isotope invariably occurs in areas of active bone growth. An intraperitoneal injection of this isotope as the chloride in a dose of 2.0 microcuries per gram produces persistent leukopenia but no anemia of significance in the peripheral blood of young mice. The same dose produces both leukopenia and anemia in splenectomized mice. Hemopoiesis is markedly depleted in the bone marrow of all animals given such injections of radiostrontium. The metaphysial and epiphysial regions of the long bones are largely, if not completely, replaced by fibrous tissue. Extramedullary erythrocytopoiesis and megakaryocytopoiesis are greatly increased in the spleen by three days after injection of strontium 89 as is true of other intervals studied through more than one hundred and seventy-five days. Splenic lymphopoiesis, on the other hand, is reduced by three days, and recovery is not complete by ninety days. Myelocytopoiesis increases more slowly in the spleens of the animals given injections of strontium 89 over the period of observation. Extramedullary hemopoiesis is not remarkable in other tissues. The rapid development and persistence of extramedullary erythropoiesis in the spleen prevent anemia in mice given strontium 89 intraperitoneally in a dose of 2.0 microcuries per gram.

Until the present time no effective method has existed for removing these radioisotopes from the body once they have localized in bone. Attempts to utilize the same principles involved in removing lead from the body have been unsatisfactory. The dangers of these isotopes are largely confined to the eventual appearance of aplastic anemia, sarcomas of bone or lymphomas.

## SUMMARY AND CONCLUSIONS

In summary it is clear that at this particular moment, in spite of the fact that the atomic bomb was developed in this country and that great strides have already been made in terms of better understanding of the biologic effects of radiation, we would hardly be much better off to cope with an atomic bomb attack on one of our major cities than the Japanese were at Nagasaki. Leaders in medicine and radiobiology are giving attention to this problem and a plan and actual preparation for such an eventuality will probably evolve and be placed in operation. In the meantime, the government and universities are spending millions of dollars for research on methods of diagnosing, treating and preventing radiation injury. The physician must play a role in the investigation of these problems during this period of peace. That he will play a role in handling casualties in the event of an atomic war is inevitable.

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**Renal Infarction.**—Foa described the gross and microscopic changes of a renal infarct caused by permanent ligation of a branch of the renal artery. At first the color is reddish gray, the infarct stands above the surface of the rest of the kidney and the tubular epithelium is swollen and cloudy and shows disintegration of its nuclei. The glomeruli and blood vessels, aside from edema and diapedesis of red cells, appear normal. There is a red zone surrounding the infarct, between it and the normal tissue, caused by tremendous engorgement of the capillaries. After 3 to 4 days the infarct has a gray color, the surface is level with the rest of the kidney, and the boundary zone is less red and wider. The tubular epithelium has lost its architecture and appears as a hyaline or granular mass. Many of the glomeruli show partial or complete necrosis and there are thrombi in the smaller arterioles. After 8 to 15 days the infarct has become smaller in all dimensions and is retracted from the surface of the kidney. There is a progressive contraction so that at 1½ to 2 months there may be found, at the site of the infarct, only an umbilication of the renal capsule, the infarct itself being represented by a yellow, contracted zone in the cortex. Occasionally there is left, in place of the infarct, a deep and irregular cyst or cavity which is covered with fibrous tissue and surrounded by exuberant parenchyma. At times the infarct may be reduced to a small calcified mass.—Regan, Francis C., and Crabtree, E. Granville, *The Journal of Urology*, June 1948.

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[2] Jacobson, L. O., and others: Studies on Radiosensitivity of Cells, Science **107:** 248 (March 5) 1948.

[3] Jacobson, L. O., and Simmons, E. L.: The Effect of Splenectomy on Radiostrontium Toxicity, abstracted, Anat. Rec. **100:** 678 (April) 1948.

# STATUS OF PERINEAL PROSTATECTOMY TODAY

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The purpose in presenting this subject is twofold: first, to present additional evidence on perineal prostatectomy as to its relative safety and good end results and, secondly, to endeavor to stimulate wider interest in the perineal surgical treatment of carcinoma of the prostate.

There are four available methods of relieving prostatic obstruction surgically: suprapubic, retropubic, transurethral resection and perineal prostatectomy. Each of these methods has certain advantages and disadvantages.

The suprapubic route is probably the easiest surgical method to master, requiring the shortest period of training to perform successfully, and uniformly gives good end results. Against it is the somewhat higher mortality than that of any other method, averaging in competent hands 4 to 6 per cent. Morbidity also is greater and hospital time longer. It should not be attempted in the treatment of fibrotic or calcareous obstructions or suspected cancer. In my own practice the procedure is limited to those patients with extremely large prostates (200 Gm. or over), those associated with large or inaccessible bladder tumors, large or multiple calculi, diverticula requiring excision and a few enlargements associated with atonic or neurogenic dysfunction. Mortality has averaged 5 per cent, morbidity 22 per cent; it is employed at the present time in approximately 3 per cent of cases.[1]

Retropubic prostatectomy, while newer and a little more difficult to perform, has been shown to be accompanied by less shock, slightly lower mortality, 1.75 to 6 per cent decreased morbidity (10 per cent), shorter hospital time and good end results provided certain precautions are taken. It is a relatively new operation, and statistics so far are somewhat limited. However, it does seem to violate one long established principle of prostatic surgery; namely, there is inadequate drainage with its associated problem of infection. There is also a relatively high incidence of stricture of the vesical neck unless a wedge of vesical neck tissue is removed at the time of operation. While it is suitable for the average adenomatous hyperplasia, it does not lend itself particularly to the treatment of very large adenomas, the small fibrous prostate and growths of suspected malignancy, though some early cancers are reported to have been removed successfully by this route.

Transurethral resection, boasting the lowest mortality (1 to 3 per cent), the lowest morbidity (8 per cent), shortest hospitalization and wide popularity with both physician and patient, would seem to be the best method, and is so considered by many able urologists. However, incomplete removal for various reasons, strictures and distortions of the urethra and vesical neck with resulting urinary frequency, occasional cases of incontinence and the lack of permanency of relief have somewhat dimmed its popularity. This method is admirably suited to bars, median lobes, vesical neck contractures, smaller prostates which protrude into the bladder, the average neurogenic bladder, to persons who are extremely poor risks and to persons with associated pathologic changes, such as accessible papillomas and calculi. In my own practice its use is now limited to these types of cases and to some younger patients in whom preservation of sexual function is of considerable importance. This amounts to approximately 37 per cent.

Perineal prostatectomy has not enjoyed the popularity of these three other procedures. In my opinion the underlying reasons are (1) lack of familiarity with the anatomy of the male perineum, (2) inadequate teaching, or the total absence of it, in many of the well organized medical centers and (3) the lack of courage on the part of the surgeon to follow through and master the approach in spite of having previously encountered a difficult case or one of the more serious complications.

Assuming that the surgeon has the average surgical skill and gentleness in handling tissue, he does need a good working knowledge of perineal anatomy, but, more than this, he must have adequate demonstration and teaching during his training and an opportunity of doing the operation often enough to do it skilfully.

Perineal prostatectomy is the one operation by which almost any pathologic change encountered can be adequately dealt with. In the words of Dr. Hugh Young[2]: "The great advantage of the operation is that it is performed under the complete visual control of the operator; that hemorrhage encountered is stopped, the enucleation is certain in its completeness; the verumontanum, ejaculatory ducts, the internal and external sphincters are protected, dependent drainage for urinary and inflammatory secretions is obtained, and the lowest mortality rate is secured." Newer methods, instruments and drugs have altered these truths very little.

The disadvantages are of course well known. Position during operation is unpleasant and may be associated with respiratory or cardiac embarrassment, though I have not seen either, using the Edwin Davis perineal elevator. Such complications as do develop may be unpleasant and difficult to overcome; namely, rectal injury, persistent perineal fistulas and incontinence.

This series of 350 consecutive cases is made up of 334 simple enucleations, 2 subtotal prostatectomies and 14 radical perineal operations which are analyzed separately. Prostates varied in size from 4 Gm. to 157 Gm. Of these 75 were recurrent adenomas or fibroadenomatous glands weighing less than 20 Gm. and 2 were calcareous glands, 1 removed by subtotal prostatectomy and 1 by leaving the capsule intact. These 77 cases were so treated in order to obtain good bladder tolerance and avoid stricture, which the operator did not feel he could assure by any other method. Later, 39 proved to have nocturia, grade 0 to 1, 4 nocturia, grade 2 to 3, and 3 nocturia, grade 3 or over. In 2 of the latter, examination showed prostatic tissue which had not been removed. These were treated by transurethral resection. In 1 case no cause could be determined. In the remaining cases no data are available. Twelve patients were operated on after abdominal sur-

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Read before the Section on Urology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

[1] Higbee, D. R.: Benign Prostatic Obstruction: Comparison of Results Following Suprapubic, Transurethral, and Perineal Operative Procedures, J. Urol. 56: 83-96 (July) 1946.

[2] Young, H. H., and Davis, D. M.: Practice of Urology, Philadelphia, W. B. Saunders Company, 1926, vol. 2, p. 441.

gery complicated by acute urinary retention. Twenty-four had been admitted for hospitalization of medical illnesses. The 80 cardiac cases are discussed as a separate group. In other words, this series was not one of selected risks.

## THE GROUP OF 336 PATIENTS

### MORTALITY

In the first group of 336 patients 6 died, or 1.8 per cent; of these 2 were coronary deaths occurring twenty-four hours postoperatively, 2 were from large pulmonary emboli on the third and fourth postoperative days, 1 from septicemia twenty-four days postoperatively and 1 not related to the operation, from carcinoma of the cecum two months later.

### MORBIDITY

Complications developed in 39 cases, or 11 per cent; postoperative hemorrhage occurred in 13 cases, rectal injury in 11 (4 resulting in fistulas), pulmonary complications in 13, acute pyelonephritis in 2, cardiac disease in 4, toxic dermatitis in 2 and ligation of the left ureteral orifice requiring release in 1.

*Postoperative Hemorrhage.*—Postoperative hemorrhage requiring return to the operating room for evacuation of clots occurred in 13, usually on the day of operation, although in 3 it occurred after the sixth postoperative day. Ten of these complications were corrected transurethrally, 3 by reopening of the incision in order to replace the Bardex transurethral drainage. Of these patients, 6 were given blood transfusions, 2 of them twice. Blood loss, therefore, during and after surgical treatment has not been excessive, totaling 4 per cent of cases, with transfusion in less than 2 per cent.

*Rectal Injuries.*—In the 11 cases of rectal injuries, fistulas occurred in 4, or 1.2 per cent. In 7 of the 11 cases the perineal operation was abandoned; suprapubic enucleation was substituted in 2, and transurethral resection in 5. In 4 of the 7 cases healing was by primary intention; in 3 fecal fistulas developed which closed within a few weeks' time. In 2 of the 4 cases with rectal injury in which the perineal procedure was completed, the injury was discovered toward the end of the operation, and in 2 it developed five to seven days postoperatively. In 3 cases permanent healing required approximately three months, and thereafter there was no difficulty with either rectal or urinary function. The one remaining patient went elsewhere for consultation and could not be followed, though he was said to be alive and well three years after the operation.

*Pulmonary Complications.*—There were 13 cases with pulmonary complications, in 7 diagnosed as embolic pneumonia, in 4 as bronchopneumonia, in 1 as lobar and in 1 as diaphragmatic pleurisy. These complications, while not serious, prolonged hospitalization on an average of seven days.

The 2 patients in whom acute pyelonephritis developed approximately two weeks after surgery were operated on without preliminary catheter drainage, which was perhaps merely a coincidence.

*Cardiac Complications.*—There is a general impression that persons with cardiac disease stand prostatic surgery other than transurethral resection poorly, at least that the mortality will be considerably higher. The fact that there were 2 cardiac deaths and 4 other cardiac complications in this series does not bear out this belief so far as perineal surgery is concerned. Two deaths have been noted under the mortality statistics. One of these patients had a 37 Gm. prostate and complete heart block, with a pulse rate of 38 to 40, and died after a severe chill, forty-eight hours postoperatively. He had had no cardiac embarrassment until the chill occurred. The other death was of a man who had had repeated coronary attacks and transurethral resection three years previously with persistent frequency of urination and bladder irritability. Coronary occlusion occurred suddenly twenty-four hours postoperatively after a rather trying twenty-four hours of bladder discomfort, insufficiently relieved by sedatives.

Of the four patients who survived cardiac complications, coronary symptoms and signs developed in 3 and acute decompensation with pulmonary edema in 1 (associated with intravenous administration of dextrose). In only 1 of the 4 had the heart condition been considered of importance prior to operation, and all recovered completely. In 80 of the 336 cases cardiac risks were considered to be less than average prior to operation: persistent hypertension of 160 or over (54), advanced arteriosclerosis (3), evidence of previous coronary occlusion (4), cardiac decompensation (13), or one of the less frequent arrhythmias (auricular fibrillation 4, Stokes-Adams 1), heart block (2). Of this group in 13, or 17 per cent, some complication developed after surgery. Of the 54 cases with hypertension the highest pressure was 240 systolic and 140 diastolic; in 15 diastolic pressures of 100 or more were maintained before and after operation. In only 2 instances did an established hypertension subside permanently following operation. Of the 13 patients with histories of chronic myocarditis and signs of mild decompensation, after catheter drainage and digitalization, all but one progressed satisfactorily during the operation and convalescence, the exception being the patient in whom pulmonary edema developed.

On the basis of the findings outlined cardiac patients stand perineal surgery well, though there is probably less immediate risk if treatment is by transurethral resection.

*Fistulas.*—Persistent perineal fistula occurred in 1 case and was due to improper postoperative judgment and care. Use of the perianal incision elevating the levator ani anteriorly, followed by primary closure of the incision and transurethral drainage, seemed to have eliminated this complication, which statistics show formerly occurred in approximately 2 per cent of perineal operations.

*Incontinence.*—Fear of urinary incontinence is more widespread than is justified, for, if the mechanism of incontinence following perineal surgery cannot always be fully explained, the methods of avoiding it are nevertheless well agreed on: (1) strict following of lines of cleavage, especially in [illegible] the apical attachment of the rectourethralis; (2) [illegible] of unnecessary dissection and exposure, thereby interrupting as few nerve fibers as possible, and (3) gentleness and care in retraction, both laterally and anteriorly, in the region of the perineal body and external sphincter.

In this group of cases some degree of difficulty in holding urine immediately after starting to void was present in 17 per cent, remaining to some degree in 10 per cent at one month and in 3 per cent at the end of three months. The degree of incontinence varied from a few drops in 15 per cent to complete incontinence when standing in 5 patients. The latter were the slowest in regaining full urinary control. Four patients, approximately 1 per cent, had slight periodic urinary incontinence for nearly a year, and clothing of 2 patients, one a man of 83, was often slightly damp on visits to the office thereafter; the other patient, a man of 65 with chronic uremia and myocarditis, finally gained complete urinary control after one year.

### RESULTS IN ELDERLY GROUP

There was no mortality in the group of 25 patients 80 years or over, the oldest being 90. Preoperative catheter drainage averaged 7 to 9 days; postoperative time to voiding and healing was eleven days in 12 cases and up to twenty days for the remainder. Average hospital time was four weeks or less, though the longest period was forty-six days, in a patient who contracted pneumonia postoperatively. Prostates averaged 53 Gm. in weight, with two over 150 Gm.

There are some who believe that elderly men will not have good end results after perineal surgery. Of the 25 in this group, 12, or one half, had some degree of incontinence immediately, 2 being totally incontinent at first. However, all had normal urinary control within one to three months except 1 patient, aged 83, already mentioned. All developed good bladder tolerance with nocturia, grade 1 to 3, except one senile man who voided without knowing when this might occur. Five of the 25 had had previous transurethral resection.

### CONCLUSION

Conservative perineal prostatectomy can be carried out with low mortality, little blood loss, few complications and good end results at any age.

## CANCER OF PROSTATE

We have all treated patients having inoperable carcinoma of the prostate with, occasionally, surprisingly good results. Seven persons come to mind who have lived fairly comfortably between seven and nine years, in whom the diagnosis was proved, sometimes more than once, by transurethral excision. However, these cases are exceptional, and in my own practice the average length of life after initiation of palliative treatment is from three to five years.

When one considers that in 14 per cent of men over 45 cancer of the prostate develops,[3] that two decades of the various forms of radiation therapy have at best given palliative relief in less than 30 per cent of these cases, and that after nearly a decade of endocrine treatment and resection we are producing no proved cancer cures by these methods, we should give some thought to our responsibility to the public for our somewhat backward attitude in meeting this serious problem more decisively. The specialist cannot sit back and allow the man with a hard discreet area in his prostate, or for that matter one in whom there is some question of beginning extension beyond the capsule, to wait for obstructive urinary symptoms, pain or hemorrhage, to force him to initiate one or more of the established palliative measures.

Total perineal prostatectomy is not a particularly difficult procedure if one is doing other perineal surgery frequently, and surgical removal remains today the only means of producing a cure.

Funds are becoming increasingly available through cancer foundations. Educational programs, already well established, are beginning and will continue to bring more and more of these patients to us for early treatment following routine examinations. We must then be prepared to offer these persons a reasonable chance to be cured, and it is with this opportunity and obligation in mind that the following small group of cases is included.

### ERRORS IN DIAGNOSIS

Of the 14 patients subjected to radical perineal prostatectomy 2 proved to have no evidence of carcinoma on pathologic examination. Disconcerting as this is, both have good functional results. There were also 3 patients with carcinoma of the prostate treated by conservative perineal surgery followed by castration, in whom carcinoma had not previously been suspected. One patient, diabetic, lived comfortably for three years before dying of diabetes and "liver trouble." One remains in apparent good health after two years; the third died suddenly while making a radio address two and one-half months postoperatively.

### RADICAL PERINEAL PROSTATECTOMY WITH ORCHIDECTOMY

Of the 12 patients with proved carcinoma of the prostate treated by radical perineal prostatectomy 4 were castrated in conjunction with the operation as a result of suspected or proved malignant growth beyond the prostatic capsule. Of these, evidence of progression of the malignant growth by rectal examination is absent in 1 case at the end of three years, absent in 2 cases at the end of two years and in 1 case eighteen months after surgical treatment. The last patient mentioned showed carcinoma extending into the seminal vesicles. He had a good functional end result and was in good health without palpable evidence of cancer at a recent examination.

### RADICAL PERINEAL PROSTATECTOMY WITHOUT ORCHIDECTOMY

Of the 8 patients operated on by radical excision and partial removal of seminal vesicles but without castration, 5 are alive and show no evidence of recurrence (2 at the end of four years; 1, three years; 1, two years, and 1, one year following surgery). Of those not living 1 died of a pulmonary embolus on the fourth postoperative day, giving an immediate mortality of 12.5 per cent; 1 died one and one-half years postoperatively of pneumonia, postmortem examination showing no evidence of cancer, and 1 was a suicide two and one-half months postoperatively.

All patients were prepared by catheter drainage and 5 mg. diethylstilbestrol daily for ten to fourteen days. On rectal examination regression was evident or pronounced in 9 cases, sometimes sufficient to make the original diagnosis questionable. In 3 cases there was no evident change. Operability is therefore usually facilitated by preliminary treatment with diethylstilbestrol.

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[3] Goodyear, W. E.: Perineal Prostatectomy: A Hope for Cancer Cure, J. M. A. Georgia 36: 425-427 (Nov.) 1947.

Following operation, convalescence was usually uneventful, though 1 patient was given a transfusion immediately after the operation. Nine healed by primary intention in twelve to twenty days, and the remainder on catheter drainage, the longest being thirty days. There was one rectal injury which healed primarily and, though 7 were totally or partially incontinent at first, all obtained good urinary control after a reasonable period of time.

### CONCLUSION

Radical excision should be attempted in all cases of cancer confined to the prostate gland and in those borderline cases which respond to diethylstilbestrol therapy. Biopsy may or may not be indicated when one is in doubt.

Patients encountered in whom complete removal is impossible because of extension or for other reasons apparently obtain as good palliative relief as those treated by other methods and, while a five to ten year period without recurrence will be necessary to establish the number of cures obtained, some of these patients will be cured of cancer. The number so treated and cured should increase steadily.

1117 Republic Building.

## EVALUATION OF TRANSURETHRAL PROSTATECTOMY

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and
CHARLES H. PLACE, M.D.
New York

In a symposium on prostatectomy such as this, it is not our intention to defend the transurethral operation against any one of the other three methods, but rather to try to evaluate it as a surgical procedure and therapeutic agent in our hands, in contrast to enucleation by any one of the other methods. At St. Luke's Hospital, it has been our dictum that the method of approach rested with the surgeon and that he should be guided by his experience, so that when he operated he felt that he could offer the patient the best chance of cure. The suprapubic approach in our hands prior to 1932 left little to be desired, but the advent of transurethral resection offered a challenge.

The first transurethral resection was done in our hospital in June 1932. Resections were done at first with a great deal of trepidation because of the reported rates of morbidity and mortality in the hands of the early advocates of this method. In this manner, the many pitfalls were avoided. As our experience grew, it was felt with more than a modicum of modesty, three years later in 1935, when this present report begins, that the staff had attained a degree of proficiency comparable to that of the other groups of resectionists throughout the country. Early ambulation, which has since become so popular, the restoration of urinary function within twenty-four or forty-eight hours, the minimal surgical shock, allowing elderly poor risks literally to "breeze through" an operation, and the gratefulness of the patient himself led us to do more and more operations by this method. In 1935, 78 per cent of the prostatic operations were done by the transurethral method; in 1936, 82 per cent; in 1938, 88 per cent, and from 1939 through 1944 practically 100 per cent.

The observations in this paper are based on 1,066 cases handled by the various members of the Urologic Staff of St. Luke's Hospital between 1935 and 1945. It is believed that if one discusses the trouble which has been encountered in these cases a better evaluation is arrived at than if the good results were emphasized. In our series the average age was 66.55 years, the youngest being 44 and the oldest 96. There were 957 (89.8 per cent) cases of benign lesions and 109 (10.2 per cent) cases of carcinoma with retention.

### ANESTHESIA

During the first five years of this series, the transsacral block according to La Bat was used. It was definitely believed at that time that general anesthesia in patients, who as a rule were elderly, would add to the rates of postoperative morbidity and mortality. The science of anesthesiology has so advanced since then that this threat of trouble with general anesthesia had been reduced to a minimum. In 1940, one of us (J. A. T.),[1] in searching for a simpler procedure than the transsacral block, which had necessitated eleven punctures, utilized the lumbosacral subarachnoid tap, which required only one injection and which offered the patient less of an ordeal and the anesthetist a relatively simple procedure. This method has been used almost exclusively since then for resections.

### TWO OR MORE RESECTIONS ON FIRST ADMISSION

In 205 cases, or 19.3 per cent, another resection was necessary during the first hospital admission. It is believed that when one is using the transurethral method patients should not be allowed to leave the hospital unless they empty their bladders. Patients are told before the operation that one resection might not be adequate for complete restoration of function. The operator should have no qualms about doing a second or a third resection if the result is not entirely satisfactory. It has often been surprising, when patients have not emptied their bladders after transurethral resection how small an amount of tissue removed at the second operation will spell the difference between success and failure.

### IMMEDIATE POSTOPERATIVE HEMORRHAGE

There were 18 patients, or 1.7 per cent, who had postoperative hemorrhage, which necessitated their return to the operating room. Of these, 12 were controlled after the evacuation of clots and fulguration of the bleeding point. Six patients, or 0.56 per cent of all cases, required suprapubic operation for control of hemorrhage.

### DEATHS

The record of 5 deaths in this series justifies our application of the phrase "minimal procedure" to this operation. When one considers the age group, with concurrent cardiovascular changes, and the fact that many of these patients were operated on when they had stabilized high levels of urea, at figures that one would not consider favorable for open operation, then one must conclude that this method is far superior so far as fatalities are considered. One case to illustrate this point was of a Negro of 78 years, admitted

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Read before the Section on Urology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

[1] Taylor, J. A.: Lumbosacral Subarachnoid Tap, J. Urol. 43: 561 (April) 1940.

in complete retention, in August 1947, with a history of repeated attempts at catheterization. On admission, he had a level of urea nitrogen of 49 mg., diabetes, cardiovascular disease, dilated aorta and a Bacillus coli infection of the blood stream. Treatment included blood transfusions, antibiotics and oxygen, and his condition was considered stabilized two months later. A transurethral resection was done under low spinal anesthesia, and 65 Gm. of tissue were removed. He voided well on the third postoperative day, and he emptied his bladder. He left the hospital for the convalescent home on his eleventh postoperative day. He was seen in the outpatient department on May 7, 1948. His only complaint was nocturia (two episodes nightly). He emptied his bladder, and a no. 26 sound was passed easily through the urethra. It seems to us that this patient could not have withstood open surgical treatment.

The first death was that of H. C., age 66, with cardiovascular disease, who had benign prostatic hypertrophy and a vesical calculus. At his first operation, on Aug. 12, 1937, a litholapaxy and a transurethral resection were performed, and he did well except for partial urinary retention. He was returned to the operating room on August 26; he had acute left ventricular failure with massive pulmonary edema and died on the table.

The second death was that of H. M., age 61, who was operated on Jan. 18, 1943. He had an uncontrollable hemorrhage on the operating table and was taken to the main operating room, where a suprapubic enucleation was performed. He died of hemorrhage on the table.

The third death was that of A. H., age 67, who was operated on Dec. 1, 1943. He went through the operation without any difficulty and progressed favorably until the Foley bag was to be removed on the second postoperative day. The bag would not deflate, and many urethral procedures were tried, with the subsequent development of a periurethral abscess and a Bacillus coli infection of the blood stream. He died three weeks postoperatively, with a cerebral hemorrhage. Since then, it has been learned that 2 cc. of chloroform injected into the bag when the bladder is filled with a neutralizing solution will dissolve the rubber cement that holds the bag to the catheter, and the bag can immediately be removed. This method was used in the only other case of failure of a bag to empty, with immediate success.

The fourth patient, J. J., age 66 years, was admitted in May 1936 with complete retention of urine, and was operated on May 11, 1936. Streptococcus hemolyticus septicemia developed, and the patient died of meningitis.

The fifth patient, G. D., age 58 years, was operated on Jan. 13, 1938. He had postoperative extravasation of urine, which suprapublic drainage failed to help, and he died of sepsis.

### STRICTURE

In this series, there were 16 cases, or 1.5 per cent, of stricture of the urethra following operation. The urethras have always been dilated gradually and carefully, with the idea of preventing any trauma, and the no. 24 resectoscope has been used in some of the smaller urethras. It is believed that at times when the resectoscope is passed, the end of the sheath will, unknown to the operator, cause trauma of the urethra. It is thought that this is one type of complication which could have been improved with the use of perineal section, a procedure which was not employed in this series.

### INCONTINENCE

There were 3 cases of incontinence. One patient, C. J., was 66 years of age in 1936, when he was operated on. He carried on his work thereafter with a philosophic attitude about his incontinence. He was retired and thoroughly enjoying life at 78—twelve years later.

The second patient was a man 63 years of age, who was operated on in December 1940 and at the time of writing was employed in the library of the hospital. He was examined on June 9, 1948—seven years after his operation. His urine was clear. He had complete incontinence and wore a clamp, and he was psychologically adjusted to his misfortune.

The third patient, 67 years old, operated on in 1939, was most unhappy about his condition.

### TIME BETWEEN RESECTIONS

It was toward the end of this series that the return of patients after several years of comfort, in whom symptoms of prostatism began to develop again and who presented large prostates, and the calls for help from patients with hemorrhage after years of normal function led us to question whether or not it might have been the better part of valor to have done an enucleation of the gland in the first instance.

*Delayed or Subsequent Resections*

| Condition | No. of Cases | Percentage |
|---|---|---|
| Retention | 58 | 5.42 |
| Hemorrhage | 30 | 2.83 |
| Carcinoma | 20 | 1.88 |
| Calculi | 22 | 2.0 |
| (*a*) Recurrent | 8 | |
| (*b*) Primary | 14 | |
| Total | 129 | 12.1 |

In regard to the subsequent procedures, the resections for carcinoma would be expected. It was, however, the subsequent resections done for retention, hemorrhage and calculi that somewhat tempered our judgment on the desirability of doing transurethral resections in all cases of prostatism. The shortest time interval between resections was one year; the longest interval was twelve years, and the average interval was six and seven-tenths years. Delayed hemorrhage is a troublesome and frightening symptom to a patient who has been well for years after his operation. It is admitted that bleeding relatively soon after the operation can be caused by a poorly nourished piece of residual prostate. When a patient has had several years without bleeding, and then bleeds, the bleeding has been found in most instances to be due to a recurrence of his prostatic growth.

### INFECTION

Infection is a problem to contend with in transurethral surgical procedures. The incidence has been greatly reduced with (1) the use of the antibiotic preoperatively and postoperatively, (2) the absence of the indwelling catheter preoperatively where possible, (3) the effort to have patients empty their bladders before leaving the hospital and (4) the early removal of postoperative catheters in patients that have not required postoperative drainage—sometimes within eighteen hours.

### COMMENT

It may seem, because of the emphasis on the complication previously cited, that we are trying to discredit the transurethral operation. Such is not the case. One learns by errors, and these errors have been helpful to us in our thoughts on transurethral resection.

Perusal of these complications has compelled us to modify our thinking somewhat about the method, and instead of 100 per cent resections, as was done in 1944, about 70 per cent of our cases are now done by the transurethral route. This leaves about 30 per cent for surgical enucleation. In this group are the younger age groups, with a longer life expectancy, the very large prostates in good surgical risks, the patients who come from remote regions, where it is impossible to follow them and offer help if the necessity for it arises, and the patients with fibrous prostates. That the transurethral method is the ideal procedure for the fibrous prostate cannot be questioned. The attempts at punching the vesical neck, with or without suprapubic drainage, prior to the advent of transurethral surgery, were for the most part unsuccessful in our hands. In cases of this type, after 1932, transurethral surgical treatment was given, with excellent postoperative results.

### SUMMARY AND CONCLUSION

One thousand and sixty-six cases of prostatism in which transurethral resection was done by the various members of the urologic staff of St. Luke's Hospital between 1935 and 1945 have been reviewed. The complications of this method are discussed. Transurethral resection, in our opinion, is a "minimal risk" procedure and was the ideal operation in about 70 per cent of our cases.

## ABSTRACT OF DISCUSSION

### ON PAPERS BY DR. DANIEL R. HIGBEE AND DRS. JOHN A. TAYLOR AND CHARLES H. PLACE

Dr. James Peters, Melbourne, Australia: I feel honored to discuss this paper in the place of my senior in Melbourne, Henry Mortenson. I bring you his thanks for your hospitality toward the Australians and very deep appreciation of your many kindnesses. The fact that he is returning, I feel sure, is not only a tribute to American urology but, speaking literally, is a confirmation of the fact that he drank deeply of your hospitality—and that is no reflection on your present climate. My first experience with papers delivered personally by an American was during the war in the Pacific. I then noticed how briefly and concisely and definitely the views were put forward. During my two years in England I have seen how eagerly read and attended are the papers in American medical literature. My impression after only two weeks in America is shown by these papers. There appears to be universal agreement that after general consideration of the patient the particular type of gland is treated by the method expressly suitable. The papers show that the various technics are mastered and applied and confirm the contention that the large gland is better treated by open operation, that operation in a manner which, in the hands of the particular surgeon, has shown the best results. I cannot discuss the paper on resection, by Drs. Taylor and Place, nor the paper by Dr. Higbee, because frankly, gentlemen, I am in this country to learn their particular technic.

Dr. Grayson Carroll, St. Louis: Running through these presentations on prostatic surgery is a note of optimism. Dr. Fishbein, in a meeting of the secretaries of the sections, remarked, "One of the outstanding contributions to medicine was the improvement in the treatment of bladder neck obstruction." Length of stay in the hospital reduced to ten days or two weeks, minimal amount of pain and complications during this period and a mortality rate of 1 per cent or less constitute convincing evidence of this statement. The approximation of the results in all types of surgical treatment makes one less enthusiastic in arguing about which is the best; one is content to say that the operation of choice is that one best suited to the operator, the patient and the type of gland. The urologist should be trained to perform any equally well, because they all have their place. Published figures of 5 per cent mortality in this type of operation are no longer valid. A mortality rate of 1 per cent and length of stay in the hospital of ten days to two weeks are not unique since the era of antibiotics, one stage prostatectomy and better understanding of electrolytic balance. Some of my confreres in St. Louis are meeting with a high degree of success by closing the bladder completely, leaving a small wick drainage in the suprapubic wound. We prefer to place a suprapubic tube for the first twenty-four hours as a safety valve during that critical period; my co-workers and I find that after the removal of the suprapubic tube next morning there is no urinary drainage on the dressings, which are not changed again for a week. It simplifies nursing and medical care and permits the patient to get up and about the second day without discomfort. We are satisfied with the technic described by Terrance Millen. The excellent view after the prostate is removed makes it possible to treat any abnormality of the bladder, such as fibrous bar or median lobe, easily. The Cherney incision, a double Gibson incision cutting directly through the recti muscles, gives a better exposure for the radical removal of the carcinomatous prostate, which is quite practical by this method. We inflate the bag within the bladder. Dr. Higbee's record of over 300 patients treated by the perineal prostatectomy demonstrates the value of this procedure. Its greatest value is the exposure of the posterior lobe, where early carcinoma is most commonly found and a frozen section can demonstrate the presence of carcinoma. The Papanicolaou test may offer us an opportunity to detect a malignant condition in a larger proportion of cases, making it imperative for the urologist to be familiar with the radical surgical removal, either by the perineal or the retropubic route. We should start a slogan: After 50 see your urologist for examination.

Dr. Vincent J. O'Conor, Chicago: I wish to express my appreciation for the painstaking review presented by Dr. Taylor and Dr. Place regarding their results in transurethral resection of the prostate. Their figures and end results, with special emphasis on application, more or less agree with mine and with those of other urologists who have had extensive experience in this field. My co-workers and I apply the procedure of transurethral resection to about 75 per cent of the patients we see with a vesical neck obstruction; the remainder are subjected to enucleation of the gland. Transurethral resection in our hands is followed by an annoying delayed hemorrhage from the bladder neck in too large a percentage of instances. Regardless of as complete a removal as possible and adequate control of infection, about 1 out of every 12 to 15 patients will have an episode of troublesome delayed hemorrhage from twenty-one days to several years after operation. For this reason we rarely do transurethral resection in large glands when the patient is going to return to an area remote from good urologic care. Stricture of the urethra continues to be a troublesome complication following transurethral surgical treatment. We feel that transurethral resection should be accorded to the majority of the patients that we see with obstructive prostatic lesions, but in approximately one fourth of these patients, in our experience, enucleation of the gland furnishes a more lasting and more satisfactory end result.

Dr. Nels F. Ockerblad, Kansas City, Mo.: A few years ago, such a symposium as this could not have been put on a program without causing considerable acrimonious debate. It is a sign that we, as urologists, have grown up when we can discuss and evaluate these divergent but efficient means of dealing with the problem of prostatism. As to Dr. Higbee's paper I should say little, for the simple reason that I have never been enthusiastic about the results in perineal prostatectomy. The operation itself from the operative point of view is fine. The transurethral operation has largely replaced it as an operation of choice in small to moderately enlarged prostates. The transurethral procedures as evaluated by Dr. John Taylor and Dr. Charles Place show that the operation of transurethral resection is no better than the operator. A comparatively unskilled surgeon may obtain very good end results in any of the open operations. In the transurethral procedure there is no place for the inept surgeon. In order to be satisfactory, this operation must approximate the clean removal of the suprapubic, perineal or retropubic enucleation. Until a few years ago, I contended that there were not more than 25 urologists in these United States who could do a really good transurethral prostatectomy. At the present time, I might raise that number slightly. Right now, the operation is suffering from a large number of inadequate resections. It is much better for a surgeon to concede that he cannot properly resect a prostate of over 50 Gm. than to attempt it and fail. Certainly, it was this operation that extended the limits of operability in prostatism, so that many aged sufferers who could not have had operative relief from prostatic obstruction can now be included as reasonable risks. The really great work of Reed Nesbitt took this operation out of the "punch operation" class and put it among the most highly technical of surgical procedures. There is a place for all of these operations, and every urologic surgeon should be not only familiar with each of these but also should be able to perform easily each of these operations.

Dr. Abraham Fleischman, Des Moines, Iowa: I was a participant in a dispute that occurred in this section more than a decade ago, when Dr. Morrissey was chairman and Dr. Herb was secretary—at that time I took issue with Drs. Elkhart and Thompson—in which I deprecated some of the shortcomings of transurethral resection. After more than a decade I want to retract what I said, that transurethral resection did not fulfil the certain requisites for proper removal of the prostate gland. I stated at that time that the procedure was limited only to the small gland. Today I want to say that the most dangerous procedure, as far as I am concerned, is the resection of the small gland, and not the moderately enlarged gland, and that I can do today a resection of a prostate up to 100 Gm. just as safely as I can a smaller gland. I would like to enumerate to you some of the difficulties and pitfalls in resecting some of the small glands. In the gland in which the fibrous tissue predominates, the so-called fibrous button, it is difficult to differentiate glandular tissue and fibrous tissue in some instances from the so-called false capsule. In the so-called large gland, in which the glandular tissue predominates, there is a great area which can be differentiated, and one can resect that particular gland because the glandular tissue does not approach the so-called fibrous capsule (by that I refer to the false capsule and not to the true capsule in its histologic structure). Then there is the so-called median bar, in which there is accentuation of the declivity of the posterior lip, which draws the verumontatum up close to the posterior lip. I have encountered many complications in this particular type of prostate, because in those instances the anatomic relations are distorted in a great measure. I do not agree with the protagonists of resection who insist that it is necessary to resect down to the true capsule. This complication of hemolysis that Dr. Foley and Dr. Creevy and other members of the Association have so carefully described can be averted if resection is limited to the so-called false capsule. The best results that I have had in transurethral resection have been in those cases in which only 18 to 25 Gm. of tissue have been removed.

Dr. Henry S. Browne, Tulsa, Okla.: Prostatic resection is strictly a cystoscopic procedure, and over a period of years I have evolved four simple cystoscopic rules for a successful resection which have stood the test of time. These are as follows: 1. With the sheath carefully centered and the verumontanum just visible, no prostatic tissue should fall into the open end of the sheath when it is rotated in a complete circle. 2. On examination with the retrospective telescope, the entire circumference at the junction of the operated area and the bladder should show no prostatic tissue projecting into the bladder at any point. 3. On examination of the prostatic cavity with the retrospective telescope, no tissue should be seen projecting into the cavity. 4. The verumontanum should be completely visible with the retrospective telescope. If these requirements are fulfilled, one can be assured of a good result in practically every case, as the chances of human error are reduced to a minimum. Better than 90 per cent of the hypertrophied gland will have been removed, so that the chances of recurrence are no greater than in other types of prostatectomy. Up to June 15 of this year, I have done 178 consecutive resections without a death. In 3 cases I had previously done resections from six to twelve years before. Two patients had previously had a prostatectomy. During this period two prostatectomies were done. Transurethral resection, when properly done, will give results as good as, or better than, any other type of prostatectomy with less mortality, less hospital stay and greater postoperative comfort to the patient. If results are not good it is not the fault of the resection, but of the resectionist.

Colonel J. C. Kimbrough, Washington, D. C.: During the twenty-nine month period ending June 1, 1948, one hundred and eighty-four operations for prostatic diseases were performed at Walter Reed General Hospital: endourethral resection, 92; perineal, 83; suprapubic, 5, and retropubic, 4. One hundred and fifty-one operations were performed for benign disease, hyperplasia and calculi and 33 for malignant disease. The operations performed for benign disease were endourethral resection, 86; perineal, 77; suprapubic, 5, and retropubic, 3; for malignant disease the incidence was perineal (radical 24, conservative 2), 26; endourethral resection, 6, and retropubic, 1. The diagnosis in the 33 cases of malignant conditions of the prostate was established prior to operation or at operation in 31 patients. The diagnosis in 2 patients was made on laboratory examination. The radical procedure was carried out in all those except in 1 patient, 81 years old, in 1 with missed diagnosis and in 6 considered inoperable for whom endourethral resection was performed. Radical operation was feasible in 24 of the 33 patients (77.7 per cent). Endourethral resection is the treatment of choice in benign glands of grade I enlargement (usually not more than 60 Gm. of tissue were removed) and to relieve obstruction in advanced malignant conditions. Perineal prostatectomy is the operation of choice for large glands and malignant tissue amenable to radical removal. The suprapubic and retropubic operations were carried out for resident training purposes. It was necessary to open the wound for control of hemorrhage in two perineal operations and one retropubic operation. Urinary incontinence was rare in all the cases in which operations were performed except in the case in which there was radical operation for a malignant condition. Urinary incontinence was present in 3 of the 24 cases of radical operation (16.6 per cent). Incontinence is defined as the necessity for using an apparatus for urinary control. Sexual impotence is a frequent and serious squela of perineal prostatectomy.

Dr. Daniel R. Higbee, Denver: I should like to thank the discussants who agree that perineal prostatectomy still has a place in modern urology, particularly Dr. Morrissey, for his discussion and support, Dr. Ormond and Col. Kimbrough for pointing up my purpose in presenting this series of cases. If the public, through education, expects to be cured of prostatic malignant disease, we doctors should emphasize the need for repeated periodic examination and should be able to offer surgical treatment at a time when a cure may be expected. The fact that, by routine examination, Col. Kimbrough could detect such a large number of malignant conditions which were operable, is something which we cannot pass off lightly. I realize that the perineal operation is not popular, that it may be difficult and that at times it strains one's ingenuity; however, we are going to have to do more perineal operations and cure more persons of prostatic cancer if we are to maintain our prestige in our field of medicine.

# SELECTIVE UTILIZATION OF BARBITURATES

## As Illustrated by a Study of Butabarbital Sodium (N. N. R.)

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Since the introduction of barbital in 1903, hundreds of barbituric acid derivatives have been synthesized and studied both pharmacologically and clinically. While these derivatives resemble one another in action, their effects on the central nervous system are not identical. Some have more tendency to produce excitement than others. Their depressant actions on various components of the central nervous system differ. Variations are noted in onset, intensity and duration of action and in the fate of these substances in the body. Some act promptly, powerfully and briefly and are destroyed in the body. Others are slower in action and milder, act over longer periods of time and are in large part excreted unchanged.

Qualitative differences among the barbiturates enable the clinician to select a specific barbiturate for a specific purpose, i. e., anticonvulsant, hypnotic, sedative or anesthetic. By the same token the physician should also take full advantage of the quantitative variations in actions offered by the drugs. For example, in the field of hypnosis, by varying the choice of the agent, one can provide sleep early in the evening or late in the night, of mild or intense degree or of short or long duration.

The purpose of this paper is to develop this thesis of selective utilization of the barbituric acid group and to illustrate the concept by reference to a new member, butabarbital sodium N. N. R. (sodium 5-ethyl-5-*sec.* butyl barbiturate),[1] the first extensive clinical survey of which, on 630 patients, is presented here.

### PHARMACOLOGIC ASPECTS

A comprehensive investigation of the pharmacologic characteristics of butabarbital in animals has been made by Gruber, Ellis and Freedman.[2] These workers compared the drug to pentobarbital sodium, barbital and phenobarbital. Their results can be summarized as follows: Butabarbital was almost as prompt in action as pentobarbital sodium; it was intermediate between the short-acting and long-acting derivatives as far as duration of effect was concerned; it was more potent than phenobarbital and barbital and less potent than pentobarbital sodium. The drug appeared to be destroyed in the body, probably in the liver. There was no evidence of chronic toxicity even after six months of daily administration. Effects on the circulation, cardiac rhythm and respiration were similar to effects of other barbiturates.

Given a drug with these characteristics, one should be able to make a reasonable prediction as to its clinical utility. It would seem that this new barbiturate might be valuable in patients with renal disease in whom sedation was required. It should compare favorably with, or surpass, phenobarbital in the production of mild prolonged sedation. It should be useful as a sedative in aged persons. It probably would not be the drug of choice when an intense effect or a rapid action was desired. These possibilities have been confirmed and extended by this study.

### METHOD OF STUDY

Three groups of patients were treated. The first group of 155 patients required hypnosis at bed time. The second group of 100 patients received the drug because of a variety of diseases requiring prolonged yet relatively mild sedation. The third was composed of 375 patients given butabarbital sodium as part of their preparation for surgical treatment, i. e., preoperative sedation. Dosage ranged from 15 to 300 mg. by mouth.

Data obtained on each patient included a history of previous experience with other sedatives (dose, type of drug, untoward reactions and subjective evaluation), a history of renal or hepatic disease (supplemented by laboratory studies of renal and hepatic function if indicated), observations on the onset, duration and intensity of action of butabarbital sodium, on sequelae following its administration (such as headache, gastrointestinal upset, dulness and irritability) and on the response of blood pressure, pulse rate and respiratory rate.

### RESULTS

1. *General Properties.*—On the basis of data obtained from the 630 patients, certain general characteristics of butabarbital sodium can be described. The onset of action averaged between fifteen and thirty minutes after ingestion. The peak of action was generally reached within one and a half hours, and activity began to diminish in four to five hours. According to the classification of Fitch and Tatum[3] these properties would place butabarbital sodium in the intermediate group of barbituric acid derivatives from the point of view of onset and duration of action. The intensity of action of the drug can be defined as mild, resembling that of phenobarbital much more than that of the shorter-acting barbiturates, such as pentobarbital sodium, "amytal" (5-isoamyl-5-ethylbarbituric acid) or "seconal sodium" (sodium 5-allyl-5-[1-methylbutyl] barbiturate).

2. *Toxicity.*—No acute toxicity was observed, although the administration of 300 mg. by mouth in a single dose was followed by nausea and vomiting within fifteen to forty minutes in 16 per cent of the 55 patients receiving this amount. Gastric irritation from the large dose of barbiturate is suggested as the most likely explanation for this disturbance. The incidence and severity of "hangover" reactions will be discussed later. No significant respiratory depression was noted.

Several patients with impaired hepatic function were given 200 mg. of butabarbital sodium. Surprisingly little alteration in the intensity or duration of action was noted.

This should not be taken as an index of the safety of butabarbital sodium in the presence of hepatic damage. The studies of Gruber and his co-workers[2] indicate that the drug is destroyed in the body. The inference is that part or all of the detoxification takes place in the liver. It is well known that such substances may act more intensely and for a prolonged period when administered to patients with hepatic disease. That my few patients did not show such a response may be only coincidence or may be related to the relatively moderate degree of impairment of function. Hepatic disease of any extent should be regarded as a contraindication to the use of all barbiturates which are detoxified by this organ.

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From the Division of Anesthesiology, Hospital of the University of Pennsylvania and the Harrison Department of Surgical Research, University of Pennsylvania School of Medicine.

[1] Butabarbital sodium has been supplied by the McNeil Laboratories as "butisol sodium."

[2] Gruber, C. M.; Ellis, F. W., and Freedman, G.: A Toxicological and Pharmacological Investigation of Sodium Sec-butyl Ethyl Barbituric Acid (Butisol Sodium), J. Pharmacol. & Exper. Therap. **81**: 254 (July) 1944.

[3] Fitch, R. H., and Tatum, A. L.: Duration of Action of Barbituric Acid Hypnotics as a Basis of Classification, J. Pharmacol. & Exper. Therap. **44**: 325 (March) 1932.

There was no evidence of chronic toxicity. Thirty patients received the drug daily in doses of 50 to 100 mg. for periods of three to six months.

*3. Hypnosis.*—Butabarbital sodium was administered to 155 patients in 0.1 Gm. doses for the purpose of hypnosis. The patients were observed directly for a hypnotic effect and were questioned the following morning as to immediate and delayed subjective reactions. Twenty persons (13 per cent) showed no response to the drug; the remainder were either quieted in varying degrees or actually went to sleep.

Before one can consider the value of butabarbital sodium as a hypnotic, certain facts regarding insomnia should be understood. In some persons the major problem is that of getting to sleep. Once asleep these patients remain asleep for the rest of the night. In such circumstances the hypnotic of choice is one with a prompt and intense onset of action. In this category belong the shorter-acting barbituric acid derivatives. On the other hand, there are other patients who fall asleep without drugs, but who awaken in the early morning and toss restlessly for the remainder of the night. This is common in aged persons. For these the ideal hypnotic is one with a delayed onset of action and a less intense but more prolonged depression. Butabarbital sodium is extremely useful in these instances. A combination of the two types of insomnia can be treated readily by combining butabarbital sodium with a short-acting barbiturate.

One of the major objections to hypnotics is the "hangover" syndrome noted by many patients the morning following ingestion. The longer the duration of action of the depressant drug the greater will be its tendency to produce dulness, logginess, irritability or headache as an after-effect. The incidence of these side reactions in the 155 patients in this group was as follows: 28 (18 per cent) experienced dulness, weakness, dopiness or grogginess and 12 (8 per cent) experienced headache.

The utility of a particular hypnotic depends also on the cause of the insomnia. The barbiturates as a group possess no analgesic properties. They are of no value, therefore, in the relief of insomnia resulting from pain, and they are not so useful as other drugs in the treatment of insomnia related to dyspnea. Indeed, barbiturates are often contraindicated in the management of these patients, since the depression of judgment, volition and other higher cortical functions may render the patient excitable and uncontrollable. The role of the barbiturates in insomnia is therefore primarily in the management of the tense worried nervous person rather than the patient unable to sleep because of organic disease. The mild relatively prolonged action of butabarbital sodium makes this substance of value to many of the former patients. The "hangover" syndrome may militate against the general adoption of the drug as a hypnotic. This is as it should be, for a physician must treat each patient individually and cannot expect to employ a single hypnotic for all types of insomnia or for every person.

This study also served to reemphasize a point often overlooked by physicians in the prescription of a depressant drug to patients who may assume the upright position during the course of the drug's action. Although measurements of the circulation (cardiac output, pulse rate and blood pressure) are essentially normal in persons receiving narcotics as long as they remain supine, major changes are noted in many patients when they are placed in the head up position.[4] Such drugs apparently depress the vasomotor center and produce dilatation of certain vessels in the periphery. The body is thus less able to compensate for the circulatory stress of the upright position, and syncope results in a definite proportion of cases. In 1 patient who attempted to walk to the bathroom after receiving the sedative, a precipitous fall in blood pressure occurred, followed by loss of consciousness and epileptiform convulsions secondary to cerebral anemia. This same sequence of events has been noted after administration of morphine and meperidine hydrochloride.

*4. Prolonged Sedation.*—A tremendous quantity of barbituric acid derivatives are being prescribed by physicians today for the symptomatic treatment of a variety of functional and organic diseases. Phenobarbital is used in the majority of these instances, primarily because the shorter-acting derivatives (pentobarbital sodium, "seconal sodium" and "amytal") are too intense in their effect and act for too brief a period. Phenobarbital is destroyed in part in the body but is also eliminated as such by the kidneys. Impairment of renal function, therefore, may increase the toxicity of phenobarbital. Theoretically, butabarbital sodium would be useful as a substitute for phenobarbital in patients with renal damage who require sedation. Many aged persons might be included in this category. In addition, it appeared that the mild prolonged sedation of the drug might make it useful in a variety of conditions in which such therapy is indicated.

For these reasons 100 patients were given butabarbital sodium primarily for prolonged daytime sedation. The indications for treatment included:

| | | | |
|---|---|---|---|
| Hypertension | 17 | Osteoarthritis | 2 |
| Epilepsy | 17 | Tabes | 2 |
| Hyperthyroidism | 10 | Nephritis | 1 |
| Anxiety states or menopausal neurosis | 10 | Peptic ulcer | 5 |
| Congestive heart failure | 10 | Retinal detachment | 5 |
| Coronary occlusion | 5 | Subacute bacterial endocarditis | 2 |
| Bronchial asthma | 2 | Ulcerative colitis | 2 |
| Buerger's disease | 2 | Regional ileitis | 2 |
| Angina pectoris | 2 | Spastic colon | 2 |
| | | Acute rheumatic fever | 2 |

The age of the patients ranged from 7 to 75 years. The dose of the drug varied from 15 to 50 mg., three to four times a day. The smaller doses were much more satisfactory, for amounts in excess of 30 mg. tended, in female patients particularly, to produce excessive sedation, depression and headache. Dose for dose, butabarbital sodium was more intense in its action than phenobarbital. At 15 mg. levels, however, the two drugs were about equal as far as use in adults was concerned. Relief of tension, diminution in anxiety and reduction in nervousness was evident as soon as the proper dose schedule was reached.

Twenty-five of the patients in the group were outpatients. The nervous component of the medical problem in these patients was improved or eliminated in many instances by use of the elixir as a vehicle for other indicated medication. Such complaints as the "dizziness" associated with hypertension or menopausal changes, insomnia, anxiousness and nervous tension were relieved in the majority of instances. The patients expressed themselves as "feeling more relaxed," "much quieter," "less nervous" and "sleeping better." An occasional patient complained of headache within an hour of ingestion of the drug. Others spoke of being too "dopey." As a rule these complaints were eliminated by reduction in the dose of the drug.

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[4] Drew, J. H.; Dripps, R. D., and Comroe, J. H., Jr.: Clinical Studies on Morphine: II. The Effect of Morphine upon the Circulation of Man and upon the Circulatory and Respiratory Response to Tilting, Anesthesiology **7**: 44 (Jan.) 1946. Dripps, R. D., and Comroe, J. H., Jr.: Circulatory Physiology: The Adjustment to Blood Loss and Postural Changes, S. Clin. North America **26**: 1326 (Dec.) 1946.

The sedation for 17 patients with thyrotoxicosis being prepared for surgical intervention was provided by butabarbital sodium. In these patients the sedation afforded was helpful in the reduction of the basal metabolic rate. In 1 patient, apparently ready for operation and given butabarbital sodium for preoperative sedation, tachycardia developed (pulse rate 168) just prior to the induction of anesthesia. This may have been related to depression of the cardiac vagus, although Gruber and Keyser[5] reported that this drug is a much weaker vagal depressant than pentobarbital sodium or "seconal sodium."

Fifteen of the patients receiving prolonged sedation were 65 years of age or older. The results of 15 mg. doses in these patients were remarkably good. The patients were suffering from such conditions as peptic ulcer, coronary occlusion, hyperthyroidism, congestive heart failure and hypertension. Ten other patients were in the 60 to 65 year age group. The incidence of headache and logginess was lower in these older persons than in the younger subjects.

As indicated in the tabulation, 17 patients with idiopathic epilepsy were treated with butabarbital sodium. Some of these received the drug for six months. All had been getting phenobarbital. Three of the 17 were not as well controlled by butabarbital sodium, 12 noticed no difference and 2 stated the belief that they had less frequent seizures. My impression is that butabarbital sodium can replace phenobarbital in the treatment of epilepsy but offers no advantage over the latter drug.

5. *Preoperative Sedation.*—The ideal barbiturate for preoperative sedation would be a compound which was effective promptly when taken by mouth, would produce a distinct depression of the psyche without excitation and without affecting the circulation and respiration, would begin to wear off in two to three hours and would be free from "hangover effects." Although such a drug does not exist, certain of the short-acting members of the series are preferable to butabarbital sodium when judged by these criteria. Data obtained from 375 patients who received butabarbital sodium prior to operation substantiate this statement.

The mild depression produced by butabarbital was not sufficient to produce tranquillity in the face of an acute stress. Moreover, the prolonged action hampered early ambulation in certain patients. Barbiturates which act more intensely, more promptly and for a shorter period of time are preferable in these circumstances.

## COMMENT

An analysis of the results obtained with butabarbital sodium indicates that this drug should be classed as an intermediate barbituric acid derivative from the point of view of onset, intensity and duration of action. It would appear that its greatest usefulness should be in the field of daytime sedation. The mild relatively prolonged action of the drug makes it suitable for management of many functional disorders and for the treatment of the nervous tension and anxiety associated with certain organic diseases, such as hyperthyroidism, peptic ulcer, hypertension, spastic colon and ulcerative colitis. Being independent of the adequacy of renal function as far as toxicity is concerned, it should be valuable in the treatment of patients with renal damage who require sedation or hypnosis. Anxiety states in the older age groups appeared to respond well to small doses of the sedative.

There are certain indications for barbiturate therapy in which butabarbital sodium would not be the drug of choice. Our results suggest that its intensity of action is not sufficient for this substance to be particularly useful as a preoperative sedative. Likewise, the slower onset and relative mildness make butabarbital sodium less efficient for immediate hypnosis than some of the shorter-acting more potent barbituric acid derivatives. In the therapy of epilepsy this substance appears to have no advantage over phenobarbital.

The balance sheet, therefore, can be regarded as showing both favorable and unfavorable items as far as butabarbital sodium is concerned. A similar analysis of other currently popular barbiturates would reveal much the same lack of balance. No one substance can be expected to meet all requirements or to be of value in all circumstances. The physician must select from the available drugs particular agents for specific indications. He should become familiar with the characteristics of a number of barbituric acid derivatives and prescribe the one which meets the needs of each person. Viewed in this way, the chief indications for butabarbital sodium would be prolonged daytime sedation and, secondarily, "delayed" hypnosis.

## SUMMARY

A clinical survey of the characteristics and utility of a new barbituric acid derivative, sodium 5-ethyl-5-*sec.* butyl barbiturate (butabarbital sodium N. N. R.) has been made on 630 patients. The drug was found to be intermediate among barbiturates in respect to onset, intensity and duration of action. Because of its mild and relatively prolonged action, butabarbital sodium proved particularly useful in the field of daytime sedation and "delayed" hypnosis. Selection of specific barbiturates for specific purposes is urged.

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**Some Functions of the Placental Trophoblast.**—The trophoblastic chorionic epithelium is the essential parenchyma of the placenta. The trophoblast provides for the nutrition of the embryo by the destruction and absorption of parts of the uterine decidua and by the absorption of metabolities from the maternal blood circulating in the intervillous space. The transfer of various metabolites as well as the destruction of parts of the decidua is mediated by a variety of enzymes and chemical processes, some of which it is possible to study by histochemical means. In addition to these functions it has become evident in recent years from endocrinologic and chemical investigations that the placenta is an important endocrine organ which forms and secretes both steroid and chorionic gonadotrophic hormones. The formation of these lipid and protein bodies involves complex metabolic syntheses. The trophoblast is very rich in cytoplasmic ribonucleoproteins as can be demonstrated by suitable histochemical methods. The presence of a great amount of this substance in the early part of gestation suggests that the placenta is an important site of protein synthesis.—George B. Wislocki, M.D.; Edward W. Dempsey, Ph.D., and Don W. Faucett, M.D., Some Functional Activities of the Placental Trophoblast, *Obstetrical and Gynecological Survey,* October 1948.

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[5] Gruber, C. M., and Keyser, G. F.: Further Studies on the Depressant Actions of Barbiturates on the Terrapin Cardiac Vagus Nerve, J. Pharmacol. & Exper. Therap. **86:** 297 (March) 1946.

# GASTROSCOPIC APPEARANCES FOLLOWING VAGOTOMY

## With Significance of Observations in Relation to Gastric Innervation

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This communication deals with gastroscopic observations following vagotomy alone and in conjunction with either gastroenterostomy or subtotal gastrectomy in the treatment of peptic ulcer. The observations for the most part were made during the first postoperative year.

### MATERIAL

This material was divided into three groups:

1. Simple vagotomy, for conditions without abnormal communication between the stomach and the intestine. Included are cases in which supradiaphragmatic vagotomy was done ten to fourteen days following suturing for a perforated peptic ulcer (10 cases).
2. Vagotomy with gastroenterostomy (5 cases).
3. Vagotomy with subtotal gastrectomy (9 cases).

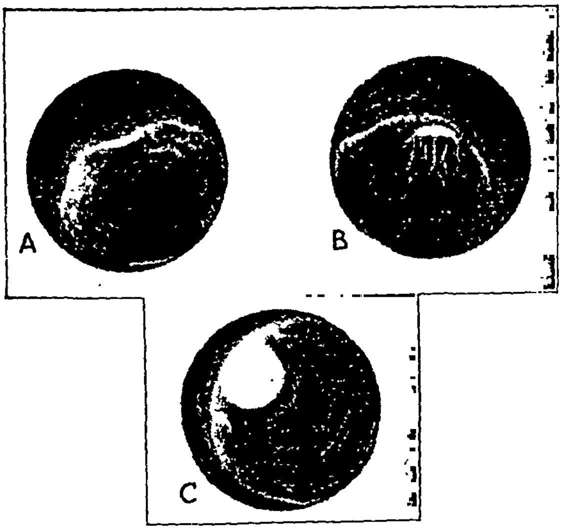

Fig. 1.—*A*, Results six months after suturing of perforated duodenal ulcer and transthoracic vagotomy. The reaction to the insulin test was negative. Relative peristaltic inactivity and patulousness of the antrum and the pylorus were present. The antrum covers most of the pyloric sphincter. *B*, one year after suturing for perforated duodenal ulcer with transthoracic vagotomy. The reaction to the insulin test was positive. Unusual occurrence of decided peristaltic activity of the antrum and pyloric sphincter. *C*, seven months after suturing for perforated ulcer with transthoracic vagotomy. The reaction to the insulin test was negative. There was the usual picture of peristaltic inactivity and patulousness of the pylorus.

### RESULTS

1. *Simple Vagotomy.*—In cases in which simple vagotomy was done the stomach was usually found to be large and atonic, with little evidence of peristaltic activity. There was no edema, thickening, erythema or friability, and the mucosa was of normal color. No significant alterations were noted in the rugal pattern. The antrum was usually dilated or atonic and relatively devoid of peristalsis. The pyloric sphincter was seen completely with ease, a condition which does not generally obtain in the nonvagotomized stomach, where only occasional glimpses of the pylorus are observed in whole or in part (fig. 4). This structure was unexpectedly observed to be patulous and continually open, except at such times when an occasional peristaltic wave passed over and momentarily contracted it. The pyloric entrance was wider than is seen in normal circumstances (fig. 1 *A* and 1 *C*). Within the first year, a tendency toward restoration of normal tone and peristalsis was noted (fig. 1 *B*). No consistent relationship could be demonstrated between these changes in the stomach and "positive" or "negative" reactions to insulin tests which indicate incomplete and complete bilateral vagotomy, respectively.

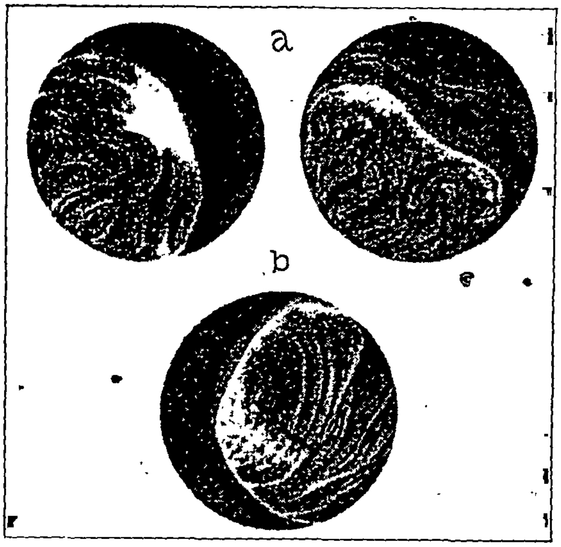

Fig. 2.—Gastroenterostomy and vagotomy of six months' duration, showing flaccidity of the antrum and pyloric sphincter (*a*) as well as patulousness of the stoma (*b*); here, too, there is negligible peristaltic activity.

2. *Vagotomy with Gastroenterostomy.*—All changes noted previously, including patulousness of the pylorus, were seen. The stomal openings tend to be more patulous and less active than is seen in gastroenterostomy without vagotomy (fig. 2). In addition, mucosal alteration of a superficial nature, consisting of erythema and rarely of edema and thickening, was encountered.

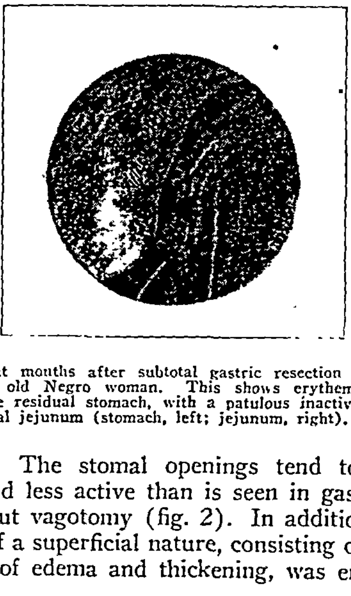

Fig. 3.—Eight months after subtotal gastric resection with vagotomy in a 62 year old Negro woman. This shows erythema, edema and friability in the residual stomach, with a patulous inactive stoma and a relatively normal jejunum (stomach, left; jejunum, right).

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Here the insulin test not infrequently is of questionable value, because of reflux of alkaline intestinal contents into the stomach.

3. *Vagotomy with Subtotal Gastric Resection.*—In every case there were fairly pronounced mucosal changes in the residual gastric pouch, erythema and thickness, with occasional edema (fig. 3). The stomal openings were usually larger than one usually sees in subtotal gastrectomy,[1] and the jejunum evidenced relatively mild mucosal change on one occasion. In cases in which insulin tests were made, the reactions were negative. However, this test is unreliable in subtotal gastrectomy, because of the reduced gastric secreting mucosa and to the regurgitation and admixture of intestinal contents.[2]

4. *Controls.*—The dilated, relatively inactive stomal opening, the semiquiescent antral atony and particularly the patulousness of the pylorus are not due to morphine, atropine and phenobarbital sodium given by us hypodermically one-half hour preceding gastroscopy as a step in preparation of this examination. Such administration in those with similar conditions but without vagotomy generally fails to reveal these gastroscopic changes.

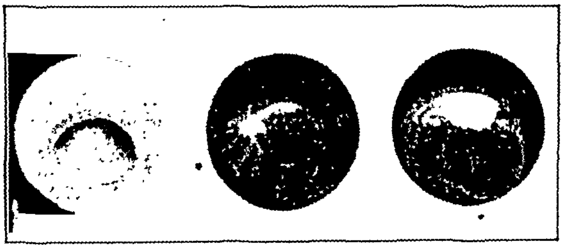

Fig. 4.—Six months after simple suturing of perforated duodenal ulcer without vagotomy. Successive stages of a peristaltic wave passing through the antrum and pylorus. Here tone, peristaltic activity and behavior of the pylorus were normal. (Contrast with figure 1 *C*.)

COMMENT

Because of existing data, gastric atony or dilatation, peristaltic inactivity and varying degrees of retention of gastric contents were expected. Such changes as easier visualization of the pylorus, and mucosal alteration in those cases in which the condition was associated with gastroenterostomy and subtotal gastric resection can also be explained. Pyloric visualization is easier possibly because of the dilatation of the stomach, allowing for deeper introduction of the gastroscope, as well as increased antral size. The mucosal changes seen here are similar to mucosal changes seen in cases of subtotal gastric resection without vagotomy.[3] Therefore, vagotomy *per se* does not protect against the gastritis of the postoperative stomach. The mucosal changes are chiefly gastric. The jejunum, the usual site of marginal ulceration when it occurs, appears to be less involved.

We are impressed with the observation that the greater the disturbance of gastric structure and function, the greater the gross mucosal alteration. Thus, in simple vagotomy there is negligible change; where gastroenterostomy is added, it is somewhat more definite, but it appears greatest in subtotal gastrectomy, with or without vagotomy.

It is generally accepted that stimulation of the vagus nerves (parasympathetic), as they pertain to the stomach, usually causes increased gastric tone and peristaltic activity and relaxation of the pyloric sphincter. Stimulation of the sympathetic nerve supply to the stomach has the opposite effect.[4] Therefore, it was to be expected that section of the parasympathetic (vagus) nerve supply to the stomach would create a state of autonomic imbalance wherein the sympathetic influence would act relatively alone, unopposed by the antagonistic effects of the parasympathetic system. The resulting effect would be comparable to sympathetic stimulation with resulting gastric atony, peristaltic inactivity and pyloric contraction. As already noted, although the effect on the stomach is what was anticipated, the influence on the pylorus appeared to be just the opposite of that expected, namely, patulousness.

This observation has been confirmed by our surgeons on reoperation in 3 cases of simple vagotomy because of resulting intractable gastric dilatation and retention. They commented on the "patulousness of the pyloric canal," that more fingers can be inserted into the pylorus than is ordinarily possible in cases without vagotomy and that there was no obstruction of the pyloric outlet. Thus, it would appear that gastric emptying may be more dependent on gastric tone and peristalsis than pyloric tonicity when bilateral vagus section has been performed.

This apparent occurrence of an "open" pylorus rather than expected contraction on vagal section would suggest that the generally accepted hypothesis of a reciprocal effect between the stomach and the pylorus on stimulation of the components of the autonomic nervous system requires further investigation and review.

SUMMARY

Gastroscopic studies were carried out in 24 cases with vagotomy alone, with gastroenterostomy and with subtotal gastric resection made during the first postoperative year. In simple vagotomy, the observations were gastric dilatation and atony, peristaltic inactivity and lack of mucosal change. An unexpected observation was patulousness of the pylorus rather than the anticipated contraction. This observation at the pylorus casts doubt on the accepted theory of reciprocal effect of the autonomic nerve supply on the stomach and pylorus. It stresses the importance of gastric tone and peristalsis, rather than pylorospasm, in postvagotomy gastric retention.

In vagotomy with gastroenterostomy the mucosal changes were not as pronounced as in those with vagotomy and subtotal gastrectomy. In both instances, the stoma was patulous and relatively inactive. In some instances, after many months, a tendency to reversion to normal tone was noted, but the mucosal alterations, particularly in subtotal gastrectomy, tended to persist. Since similar mucosal changes are seen in similar circumstances in those without vagotomy, vagotomy per se does not protect against postoperative gastritis and jejunitis.

11 East Chase Street.

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[1] Paulson, M., and Gladsden, E. S.: Partial Gastrectomy: The Clinical, Gastroscopic and Radiological Considerations, Gastroenterology **10:** 970-977 (June) 1948.

[2] Paulson, M., and Gladsden, E. S.: Symposium on Vagotomy for Peptic Ulcer: III. Medical Aspects of Vagotomy for Peptic Ulcer, Including Observations on the Clinical Value of the Insulin Test and on Post-Operative Criteria for the Completeness of Bilateral Gastric Vagus Section, Bull. Johns Hopkins Hosp. **81:** 107-128 (Aug.) 1947.

[3] Paulson, and Gladsden.[1] Schindler, R.: Die diagnostische Bedeutung der Gastroskopie, München. med. Wchnschr. **69:** 535-537 (April 14) 1922.

[4] Fulton, J. F.: Physiology of the Nervous System, ed. 2, New York, Oxford University Press, 1943, p. 214. Wiggers, C. J.: Physiology in Health and Disease, ed. 4, Philadelphia, Lea & Febiger, 1944, p. 784. Necheles, H., in Portis, S. A.: Diseases of the Digestive System, ed. 2, Philadelphia, Lea & Febiger, 1944, p. 114.

# Clinical Notes, Suggestions and New Instruments

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## DEATH FOLLOWING USE OF TETRAETHYLAMMONIUM CHLORIDE

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The autonomic blockading effect of the tetraethylammonium ion was first reported by Acheson and Moe[1] in 1945. Because of the multitude of possible therapeutic and diagnostic uses, this drug has received increasing clinical application. Reports of its use in hypertension,[2] causalgic states, peripheral vascular disease, coronary artery disease and gastrointestinal tract disease have appeared recently. In the vast majority of instances of its use, the effects produced were transient and inconstant and consisted mainly of a slight to moderate fall in blood pressure,[3] tachycardia, decreased venous pressure, increased blood flow to the extremities, cutaneous flush, increase in skin temperature and decrease in sweating, salivation, bladder tone and gastrointestinal tract motility.[4] All effects are apparently due solely to blockage at the peripheral autonomic ganglions of sympathetic and parasympathetic outflow. Toxic effects have been infrequent. The outstanding adverse effect has been noted in a small group of hypertensive patients in whom a severe depression of the blood pressure with associated vascular collapse and signs of cerebral anoxia[3] have been observed. One similar severe shocklike reaction in a patient with a normal blood pressure has also been recently reported.[5]

These toxic reactions all resulted in complete recovery, and to our knowledge the case here being reported is the first death attributable to tetraethylammonium chloride.

### REPORT OF A CASE

*First Admission.*—The patient was a 33 year old white woman who had been symptomatically well until six weeks before her first admission, in July 1947, at which time diplopia suddenly developed followed a day later by left abducens paralysis. Her systolic blood pressure was 240 mm. of mercury at that time and remained continuously elevated thereafter. Her eye signs cleared in about ten days, and then frontal and occipital headaches of moderate intensity developed. She was reported to have had albuminuria but no hematuria, and no past history of renal disease was elicitable. She had lost 12 pounds (5 Kg.) in the six weeks preceding admission. A family history of maternal hypertension was present. She was admitted to the surgical service for the purpose of having a sympathectomy.

Results of Physical Examination: The patient's temperature was 98.2 F., the pulse rate 80, respirations 16 and blood pressure 260 systolic and 150 diastolic. She was moderately anemic but in no distress. The salient physical observations were as follows: There was some exophthalmos. The optic disks showed some haziness of their borders but no elevation; the arterioles were spastic, and there were cotton-wool type exudates bilaterally. Examination of the heart revealed the point of maximal impulse to be in the sixth intercostal space at the midclavicular line. The sounds were of good quality, with the aortic second sound tambour-like and greater than the pulmonic second sound in intensity. There were no murmurs or thrills. No signs of cardiac decompensation were present. The impression on admission was that the patient had essential hypertension, with chronic glomerulonephritis and pheochromocytoma to be considered.

Laboratory Data: The hemoglobin was 70 per cent, the red blood cell count 3,730,000 and white blood cell count 7,000, with a normal differential count. The urine was acid, with 2 plus albumin, no sugar and occasional white cells. The concentration test showed a maximal concentration of 1.018. Blood sugar was 80 and urea nitrogen 18.0 mg. per hundred cubic centimeters. Urea clearance was 28.6 per cent of normal and the basal metabolic rate + 14 per cent. The electrocardiogram showed regular sinus tachycardia, no axis deviation, with the R-T segment in leads 2 and 3 depressed and the T wave diphasic in lead 2 and inverted in lead 3. A roentgenogram of the chest revealed some rounding of the left ventricle. Intravenous pyelography showed rather small kidneys with good function bilaterally and no deformity of the pelvis or the calyceal system.

A "sodium amytal" N. N. R. (sodium isoamylethylbarbiturate) test was done, with an initial blood pressure of 250 systolic and 150 diastolic and a maximal decline to 160 systolic and 120 diastolic several hours after heavy sedation.

A medical consultant was of the opinion that this was a case of chronic glomerulonephritis with secondary hypertension and felt that surgical intervention was not advisable. The patient was discharged.

*Second Admission.*—She was admitted to the medical service of this hospital on March 8, 1948, about eight months after her discharge. Eight months and six months previously she had been hospitalized elsewhere and had undergone a two stage sympathectomy with removal of the sympathetic chain bilaterally from the level of the fifth thoracic to and including the third lumbar ganglion and removal of the splanchic system to the celiac plexus. Her blood pressure had only a transient fall to below 200 mm. of mercury, but her headaches disappeared almost completely. Five weeks before this final admission she began to have a sanguinous discharge of moderate proportions from the vagina, which continued intermittently until the day of admission. For four weeks she had nausea and vomiting. One week before admission her eyesight became poor, and there was rapid progress to almost complete blindness. For five days she had steady throbbing retro-orbital headache. For two days there had been epistaxis. Physical examination revealed a pale cachectic white woman with pronounced proptosis and almost complete loss of vision. The ocular fundi were the seat of advanced hypertensive changes, with obscuration of the disks by large exudates and many recent and old hemorrhages spread throughout. There were bloody incrustations in the nose and blood on the posterior pharyngeal wall. The lungs had diminished resonance and distant breath sounds throughout. The heart was enlarged to the left, with the mitral second sound and the aortic second sound accentuated, and there were no murmurs or thrills. Blood pressure was 220 systolic and 100 diastolic. No peripheral edema or venous engorgement was noted. The clinical impression was that she had essential hypertension rather than hypertension secondary to renal disease.

Laboratory Data: Urinalysis revealed albumin (2 to 3 plus), with varying quantities of red and white cells; maximum specific gravity was 1.010. The hemoglobin was 55 per cent, red blood cell count 2,600,000 and white blood cell count 18,000, with 85 per cent polymorphonuclear leukocytes. The platelet count was 175,000 per cubic millimeter. Bleeding time was ½ minute and clotting time 2½ minutes. Blood sugar was 110 and urea nitrogen 78.4 mg. per hundred cubic centimeters. Cholesterol was 220 and esters 147 mg. per hundred cubic centimeters. The blood culture was negative.

The patient's course was relentlessly downhill, with persistent and sustained hypertension. Inasmuch as there seemed little else to offer her it was decided to give tetraethylammonium chloride to see whether her hypertension could be modified and whether this would aid in producing a clinical remission and symptomatic relief. On March 12, at 6:45 p. m., 5 cc. (500 mg.)

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From the Medical Service of Dr. Leo Loewe, Jewish Hospital of Brooklyn.

[1] Acheson, G. H., and Moe, G. K.: Some Effects of Tetraethylammonium on the Mammalian Heart, J. Pharmacol. & Exper. Therap. **84:** 189, 1945; Action of Tetraethylammonium Ion on Mammalian Circulation, ibid. **87:** 273, 1946.

[2] Lyons, R. H.; Hoobler, S. W.; Neligh, R. B.; Moe, G. K., and Peet, M. M.: Experiences with Tetraethylammonium Chloride in Hypertension, J. A. M. A. **136:** 608 (Feb. 28) 1948.

[3] Lyons, R. H.; Moe, G. K.; Neligh, R. B.; Hoobler, S. W.; Campbell, K. N.; Berry, R. L., and Rennick, B. R.: The Effects of Blockade of the Autonomic Ganglia in Man with Tetraethylammonium, Am. J. M. Sc. **213:** 315, 1947.

[4] Chapman, W. P.; Stanbury, J. B., and Jones, C. M.: The Effect of Tetraethylammonium on the Small Bowel of Man, J. Clin. Investigation **27:** 34, 1948.

[5] Friedlich, A. L., Jr.; Chapman, W. P., and Stanbury, J. B.: Severe Reaction to Tetraethylammonium Chloride, New England J. Med. **238:** 629, 1948.

of tetraethylammonium chloride ("etamon") was given intravenously over a five minute interval. Within thirty minutes the blood pressure had fallen from 230 systolic and 140 diastolic to 60 systolic and 20 diastolic, and the patient was cyanotic, comatose and in evident shock with belabored respiration. Nikethamide ("coramine") and epinephrine were given intravenously and later by the intracardiac route. By 10:30 p. m. the blood pressure had returned to 120 systolic and 90 diastolic, but her respirations were slow (8 to 10 per minute) and she appeared only little improved. Her pulse rate was 110 and thready, and her skin was cold and moist. Her blood pressure again fell to shock levels, and at 12:30 a. m., slightly less than six hours after the administration of the tetraethylammonium chloride, she died.

*Postmortem Observations.*—At autopsy, numerous ecchymoses were seen scattered over the trunk and extremities and a bloody discharge from the nose and vaginal orifice was present. There was 150 cc. of clear amber fluid in each pleural cavity. In the heart subepicardial petechiae were present. The papillary muscles of the left ventricle were hypertrophied; the left ventricular cavity was dilated, and the interventricular septum bulged into the right ventricle. Coronary arteries showed moderate atherosclerosis, but no narrowing of the lumen. The lower lobes of both lungs were beefy red and airless. The pancreas was intensely congested. Pinhead-sized circular hemorrhagic areas were scattered over the surface of the kidneys.

Microscopic Data: Widespread arteriolonecrosis was evident in the spleen, adrenals, ovaries and, to a lesser extent, pancreas and kidneys. Small-sized arteries were also occasionally involved by the same process. Sections from the heart showed only hypertrophy of the myocardial fibers and no myofibrosis. The alveoli of all lung sections were filled with fresh red cells, large macrophages, occasional polymorphonuclear leukocytes and eosinophilic granular material. Bronchioles showed severe epithelial degeneration and desquamation. Large areas of fresh hemorrhage were noted scattered throughout the parenchyma of the pancreas. Several foci of necrotic acinar tissue, the result of small infarctions, were seen, and bordering these areas were arteries with partial necrosis of their walls. The adrenal cortex was greatly increased in width because of hypertrophy and hyperplasia of the cells of the zona fasciculata and reticularis. The kidneys showed changes considered secondary to vascular disease. Medium-sized and small-sized arteries showed reduplication of the elastic lamella, hypertrophy and hyalinization of the mediums, and pronounced concentric intimal thickening and luminal narrowing. Many arteries were completely occluded by this process. Afferent and efferent arterioles were also decidedly hyalinized and narrow.

Glomerular pathologic changes reflected the two types of vascular disease, and about one half of the total number were completely hyalinized. Large numbers of other glomeruli were partly hyalinized, and varying fractions of the tuft were avascular. This change was considered secondary to chronic endarteritis. A few glomeruli showed acute thrombonecrotic lesions and acute glomerulitis consisting of proliferation of the cells of the capillary endothelium and of Bowman's capsule. Extensive atrophy of the tubules was present, and small areas of regeneration were also seen. The proximal convoluted tubules showed severe cloudy swelling and desquamation. The distal convoluted tubules and the collecting tubules showed severe widespread nuclear karyorrhexis and desquamation of the tubular epithelium. Many casts composed of cellular debris were present in the collecting tubules. The pathologic changes in the blood vessels and in the kidneys were considered compatible with the clinical diagnosis of a malignant phase of essential hypertension. The hemorrhage in the lungs was recent and probably terminal, and the pancreatic pathologic changes resulted from the acute thrombonecrotic arteritis.

### COMMENT

We believe that this death was directly attributable to the use of tetraethylammonium chloride. The sudden fall in blood pressure from excessively high to shock levels following injection of the drug could reasonably be attributed to no other cause. This toxic reaction was not dissimilar to the ones previously reported[6] in groups of patients with a comparably high diastolic pressure, except for its intensity, prolonged duration and fatal result. In as much as tetraethylammonium chloride is excreted almost quantitatively in the urine, 50 per cent appearing in the first thirty minutes, and this patient suffered from decided renal functional impairment, it is conceivable that the prolonged effect is due to diminished excretion of the drug. Postmortem observations did not reveal any coincidental pathologic change which might have been held responsible for the sudden vascular collapse. It is interesting that such a severe depressor reaction occurred in a patient who had had an extensive sympathetic resection.

### SUMMARY

A case in which death followed the intravenous injection of 500 mg. of tetraethylammonium chloride in a patient with malignant hypertension is presented. The danger of a severe toxic reaction to a patient in the malignant phase of essential hypertension is emphasized. The possibility that renal functional impairment may have prolonged the action of the drug is suggested.

## Council on Physical Medicine

*The Council on Physical Medicine has voted to adopt the following statement.* Howard A. Carter, *Secretary.*

### REBATES

Recently the Council on Physical Medicine adopted for publication the statement "Rebates" (The Journal, Oct. 30, 1948, p. 650). At its annual meeting on December 10, the Council expressed the opinion that such matters should be considered by the Judicial Council of the American Medical Association and voted to withdraw the statement. Therefore this statement is withdrawn.

## Council on Pharmacy and Chemistry

### REPORT TO THE COUNCIL

*The Council has authorized publication of the following report.* Austin Smith, M.D., *Secretary.*

### NEWER ADRENOLYTIC, SYMPATHOLYTIC, AND GANGLIONIC BLOCKING DRUGS

KEITH S. GRIMSON, M.D.
JAMES P. HENDRIX, M.D.
and
M. J. REARDON, M.D.
*Durham, N.C.*

Drugs capable of blocking vasoconstricting and blood pressure elevating effects of epinephrine have been known for many years. Early examples are ergotoxin, the Fourneau compound 933F and yohimbine. These drugs in higher dose range often depress sympathetic activity as judged by vasomotor reflexes. Other drugs such as ergotamine tartrate and 833F more potently depress or block sympathetic reflexes. In general usage these drugs are referred to as adrenolytic or sympatholytic compounds, since they block conduction along important efferent sympathetic nerve pathways. Properly an adrenolytic agent is one which nullifies an important effect of epinephrine, whereas a sympatholytic agent is one which nullifies sympathetic nerve transmission, usual reference being to adrenergic pathways controlling blood vessels and usual site of action being at the end organ. Although a sympatholytic drug by strict definition must be adrenolytic, the reverse is not necessarily true. Certain drugs may be adrenolytic only, since adrenolysis

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6. Lyons, Hoebler, Neligh, Moe and Peet.[2] Lyons, Moe, Neligh, Campbell, Berry and Rennick.[3]

From the Department of Surgery and Medicine, Duke University School of Medicine.

uniformly requires less potency or a lower dose than that necessary for sympatholysis. Interruption of sympathetic nerve transmission may also be produced by other agents acting directly on ganglions without antagonizing epinephrine.

Although early experimental results with adrenolytic and sympatholytic drugs were promising, most compounds exhibited toxicity or produced undesirable side effects that discouraged clinical use. Currently, of this group, only 933F, piperidylmethyl benzodioxane, is receiving extensive clinical trial. It is used as an aid in the diagnosis of epinephrine-producing tumors (pheochromocytomas). Goldenberg, Snyder and Aranow[1] have worked out a dosage range in which the drug normally produces moderate elevation of blood pressure. Evidently a similar amount produces reduction of blood pressure if patients have hypertension associated with an adrenal tumor. This use is promising and evidently safe.

Extensive clinical trial of drugs with sympatholytic properties has developed recently using preparations such as "priscol" (2-benzyl-4, 5-imidazoline hydrochloride) and "dibenamine hydrochloride" (N,N-dibenzyl beta-chloroethylamine hydrochloride). These are adrenolytic and in sufficient dosage also block sympathetic vasoconstrictor pathways. They act peripherally and depress or block reflex vasopressor responses. Both have certain disadvantages. "Priscol" may produce side effects such as flushing of the skin, goose flesh, nausea, apprehension, palpitation and, in larger doses, disabling postural hypotension. Under continuing treatment these symptoms are usually mild and not seriously objectionable. "Priscol" may be given orally, intravenously, subcutaneously or intramuscularly. "Dibenamine" also may produce objectionable side effects including occasionally central toxic symptoms or confusion states. It is usually given intravenously. This disadvantage is offset, however, by prolonged action lasting for many hours to a day or two. Properties of "priscol" have been reviewed by Meier and Muller[2] and Ahlquist, Huggins and Woodbury.[3] Our group[4] has found "priscol" often valuable as a treatment for peripheral vascular disorders, particularly Raynaud's disease, traumatic or reflex vasospasm, and certain causalgias. The important properties of "dibenamine" have been reviewed by Nickerson and Goodman[5] and others. Clinical trial of these drugs has yielded only a little encouragement in the treatment of hypertension but has developed definite potential use as a substitute for regional sympathetic block or actual sympathectomy in peripheral vascular disease problems.

A third drug receiving extensive clinical trial differs from those cited above in that it acts as a generalized ganglionic blocking agent and is not adrenolytic. It belongs to a group of drugs which like nicotine and curare are able to block conduction through ganglions of the autonomic nervous system and may be referred to as ganglionic blocking agents. This drug, "etamon chloride" (tetraethylammonium chloride), although long known, only recently has been extensively studied and used clinically. Acheson and Moe[6] and their associates have thoroughly examined both pharmacologic and therapeutic actions. Its ganglionic blocking action is general and thus not only interrupts sympathetic impulses but also interferes with parasympathetic transmission, producing loss of accommodation, cessation or decrease of motility of the gastrointestinal tract and alteration of urinary bladder function. Its effects are promptly interrupted by administration of neostigmine.[7] Tetraethylammonium chloride may be given intravenously or intramuscularly. Favorable results of its use in vasospastic peripheral vascular disorders and causalgias are reported.

Marked temporary reduction of blood pressure can be produced by "priscol," "dibenamine" or tetraethylammonium chloride in patients with normal blood pressure or with hypertension. Partial obstruction of coronary or cerebral arteries is often present in patients with arterial hypertension or peripheral vascular disease. Occasionally, in patients of this type cerebral or myocardial ischemia has developed after reduction of blood pressure following drugs. Although not reported in the literature, deaths have occurred following use of tetraethylammonium chloride or "dibenamine" according to information made available to the authors. Therefore sympatholytic or ganglionic blocking drugs should be used with caution. Of the three drugs described reduction of blood pressure seems to be most easily avoided with "priscol," since a dose of 25 to 50 mg. every three or four hours permits dilation of blood vessels of the extremity without significant reduction of blood pressure. The dose range required for an appreciable fall of pressure with this drug is 75 to 200 mg. Reduction of blood pressure caused by "dibenamine" or "priscol" can be counteracted by administration of posterior pituitary but not by neostigmine.

These drugs have been reported useful in a variety of clinical conditions, including Raynaud's disease, arteriosclerotic obstructive vascular disease, thromboangiitis obliterans, causalgias, phlebothrombosis or thrombophlebitis, acute ischemia, livedo reticularis, acrocyanosis, trench and immersion foot, lymphedema, post-traumatic edema, frostbite, scleroderma, postherpetic neuralgia and hypertension. Nevertheless, each of the drugs has limitations and, although valuable for certain of these clinical problems and useful as research tools, they have not yet received the widespread clinical trial necessary for them to qualify as standard therapeutic agents. Qualification will depend on proper use in well selected patients who are closely observed by their physicians. Although promiscuous use of these drugs might be dangerous, reports of extensive and careful clinical trial would indicate that judicious employment for the present may be encouraged. It is hoped that some of the numerous adrenolytic, sympatholytic or ganglionic blocking preparations now being developed may permit extension of advantages and decrease of side effects.

## NEW AND NONOFFICIAL REMEDIES

*The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.*

Austin Smith, M.D., *Secretary.*

**POISON IVY-POISON OAK EXTRACT COMBINED.—Ivoko-Pitman-Moore.**—A combination of equal parts of the extracted solids of the dried leaves of poison ivy and oak prepared in accordance with requirements of the National Institute of Health.

*Actions and Uses.*—Poison Ivy-Poison Oak Extract Combined is used for the prevention of symptoms of dermatitis due to contact with either of these plants.

*Dosage.*—Parenteral injections of the number and volume recommended for the product used. The interval between doses is usually two weeks.

An extract standardized to contain 1 mg. of total extracted solids (0.5 mg. of each) per cubic centimeter is administered in an average dose of 0.1 cc. of the extract diluted to a volume of 1 cc. In hypersensitive persons, one twentieth of that dose should be used as a test dose and the dose then gradually increased to the average. It is administered at intervals of one to three weeks during exposure.

Pitman-Moore Company

**Ivoko Poison Ivy-Poison Oak Extract with Sterile Diluent:** 1 mg. extracted solids per cc., 1 cc. vials each packaged with six 0.9 cc. vials of 0.5 per cent procaine hydrochloride in isotonic sodium chloride solution. Preserved with chlorobutanol 0.4 per cent as a sterile diluent.

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[1] Goldenberg, M.; Snyder, C. H., and Aranow, H., Jr.: New Test for Hypertension Due to Circulating Epinephrine, J. A. M. A. **135**: 971 (Dec. 13) 1947.

[2] Meier, R., and Muller, R.: Gefaswirkung eines neuen Imidazolin-Derivatives, Schweiz. med. Wchnschr. **69**: 1271, 1939.

[3] Ahlquist, R. P.; Huggins, R. A., and Woodbury, R. A.: The Pharmacology of Benzyl-Imidazoline (Priscol), J. Pharmacol. & Exper. Therap. **89**: 271, 1947.

[4] Grimson, K. S.; Reardon, M. J.; Marzoni, F. A., and Hendrix, J. P.: The Effects of Priscol (2-Benzyl-4, 5-Imidazoline HCl) on Peripheral Vascular Diseases, Hypertension and Circulation in Patients, Ann. Surg. **127**: 968, 1948.

[5] Nickerson, M., and Goodman, L. S.: The Pharmacology of a Series of New Sympatholytic Agents, Proc. Am. Federation Clin. Research **2**: 109, 1945.

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[7] Reardon, M. J.; Marzoni, F. A., and Hendrix, J. P.: The Effect of Neostigmine (Prostigmine) on the Action of Tetraethylammonium (Etamon) in Dogs and Man, Federation Proc. **6**: 364, 1947.

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SATURDAY, JANUARY 15, 1949

## THE DRIFT TOWARD A SOCIALIST DEMOCRACY

The consensus of editorial writers whose opinions have become available on the address given by President Truman to the Congress on January 5 indicates their point of view that the President is considerably left of what used to be called the New Deal. The Congress, if it should adopt any considerable number of the recommendations made, would move the nation away from its present status as a republic or a true democracy into a condition which resembles what is called in Europe a socialist democracy. Adhering to the pattern followed by other nations in this drift, President Truman said:

> We must spare no effort to raise the general level of health in this country. In a nation as rich as ours it is a shocking fact that tens of millions lack adequate medical care. We are short of doctors, hospitals and nurses. We must remedy these shortages. Moreover we need, and we must have without further delay, a system of prepaid medical insurance which will enable every American to afford good medical care.

A careful analysis of the statement quoted indicates the necessity for an absolute denial of the statement made that "tens of millions lack adequate medical care." Such statements should not be made without the ability to produce the evidence in their support. As far as can be determined by all available studies, and particularly recent studies, that statement is not supported by competent evidence.

The President says that we are short of doctors, hospitals and nurses. Actually the United States, as was proved in a statement published in these columns recently, has more doctors in proportion to the population than any other country in the world, whether with or without a system of socialized medicine. True, there are faults of distribution of physicians which need to be remedied. The faults, however, are related to economic rather than other factors. The Congress has passed and the government has implemented the Hill-Burton Act for increasing hospitals about as rapidly as they can be increased. The chief difficulty at present is the difficulty of finding personnel to staff such hospitals and the economic conditions sufficient to support such hospitals.

The American Nurses' Association, the American Red Cross, the American Surgical Association, the American College of Surgeons, the American Medical Association and, in fact, all organizations in this country interested in the utilization of nurses have been working on technics for increasing the available supply of nurses, and enrolments were 5,000 more in 1948 than in 1947; the total answer is not yet apparent. If the federal government or any of its agencies has an answer to the problem of the nurse supply, that answer will be welcomed by the medical profession. Many of the nurses themselves insist that it is simply a question of adequate remuneration in comparison with what other employees, particularly those affiliated with unions, are paid for their services.

The final sentence of Mr. Truman's recommendation brings some interesting thoughts. The first time he uses the words "adequate medical care" and the second time "good medical care," whereas Mr. Ewing usually says "proper medical care." What is needed at this time is a definition by some appropriate agency of these terms "adequate," "good" and "proper." There is plenty of evidence that the kind of medical care given in other countries under such systems as that proposed for the United States has no resemblance to the quality of medical service that now prevails in the United States. When diagnosis is made on the basis of one or two questions and when therapy is provided on the same basis, when doctors try to see from 40 to 100 patients a day in order to give the kind of medical care that can be given under such circumstances—and that is the case in many of the countries that have these systems—the medical care cannot be characterized as "adequate," "good" or "proper." Apparently what the proponents need is some adequate, good or proper term to characterize the kind of medical care that they refer to. The medical profession contends that it is inadequate, bad and improper. The one positive characteristic that it has is the fact that it is provided by the government following taxation of all of the workers of the country; a proper term would be nationalized, bureaucratic, governmental or socialized medical care.

Following the address by President Truman, a bill was introduced into the Senate bearing the names of Senators Murray, McGrath, Wagner, Chavez, Taylor and Pepper and into the House of Representatives by Congressman Dingell, which assurance from Senator Murray's office indicates is identical with Senate Bill 1320 except for the change in date and a new number, which is Senate Bill 5. As far as can be determined, there is no cry for this type of government medical service from the vast majority of the middle class people of the United States. Ours apparently is the only nation in the world still possessing a large middle class. Nor is there any insistent demand for this legislation from rural groups. In the meantime, moreover, statements just made available from competent sources indicate that at the present time 52,000,000 Americans are insured against the costs of hospitalization, 31,000,000 against loss of income due to disability, 26,000,000 against surgical expense and 9,000,000 against medical expense. This is the most rapid rate of growth of any form of prepaid medical insurance on a voluntary basis that the world has ever known. It answers the President's request—but it is not compulsory!

## ARMED FORCES MEDICAL ADVISORY COMMITTEE

As was announced to the House of Delegates at the St. Louis Session and as reported by our Washington correspondent, Secretary of Defense James Forrestal on December 13 appointed an Armed Forces Medical Advisory Committee which included nine civilian leaders of the medical profession, the Surgeons General of the Army and Navy and the Air Surgeon. At the same time Secretary Forrestal announced that Mr. Charles Proctor Cooper, president of the Board of Trustees of the Presbyterian Hospital in New York City, had accepted appointment to act as his deputy for all medical matters affecting the armed forces. He will also serve as chairman of the Armed Forces Medical Advisory Committee. The members of the committee are:

Dr. Raymond B. Allen, Seattle, President of the University of Washington
Dr. Edward D. Churchill, Boston, Professor of Surgery, Harvard Medical School, and formerly President of the American College of Surgeons
Dr. Michael DeBakey, Professor of Surgery, Baylor Medical College, Houston, Texas
Dr. Paul R. Hawley, Chicago, formerly Chief Medical Director, Veterans Administration
Dr. Richard D. Meiling, Assistant Professor of Obstetrics and Gynecology, School of Medicine, Ohio State University, Columbus, Ohio
Dr. Maurice C. Pincoffs, Professor of Medicine, University of Maryland, Baltimore
Dr. Howard A. Rusk, Professor and Chairman of the Department of Rehabilitation and Physical Medicine, New York University College of Medicine, and Medical Editor, *New York Times*
Dr. Walter H. Scherer, Houston, Texas, Past President, American Dental Association
Dr. Paul Titus, Pittsburgh, Secretary-Treasurer and Director American Board of Obstetrics and Gynecology
Maj. Gen. Raymond W. Bliss, M.C., U.S.A., Surgeon General of the Army
Rear Admiral Clifford A. Swanson, M.C., U.S.N., Surgeon General of the Navy and Chief of the Bureau of Medicine and Surgery
Maj. Gen. Malcolm C. Grow, M.C., U.S.A., The Air Surgeon

This committee will submit recommendations on general policies on the development of medical and allied services, on the elimination of unnecessary duplications or overlapping in the medical departments and the development of complete cooperation between the physicians of the armed forces and the civilian medical profession. By action of Mr. Forrestal, this committee will also give advice or assistance, on request, to the secretaries of the Army, the Navy and the Air Force, the chairman of the Munitions Board and the Research and Development Board. This committee succeeds the committee formerly known as the Hawley Board, which was established to study and recommend concerning improvements in the medical organizations of the national military establishment.

Thus comes fruition to a proposal of the Committee on National Emergency Medical Service of the American Medical Association, of which Dr. James B. Sargent is chairman. This committee has urged repeatedly the establishment of such a body as the one created by Secretary Forrestal as being vital to economical use of medical personnel and to meeting the needs of both the armed forces and the civilians of our country in times of emergency. No doubt the committee will, following its organization, establish an executive group which can assemble at least once each month in order to be aware of current problems and to act promptly.

## AMERICAN PUBLIC HEALTH ASSOCIATION RESOLUTIONS

On page 159 of this issue appear two resolutions adopted at the annual meeting, held in Boston in November 1948, of the American Public Health Association.

One resolution deals with cooperation in the school health program and calls on the National Education Association and the American Medical Association to cooperate with the American Public Health Association and other groups in approving the principle of cooperative planning of health programs which involve children of school age. This resolution expresses the long declared and well implemented policy of the American Medical Association which began with the first meeting of the Association in 1847 and has been continuously a guiding principle in its policy. Since 1911, the American Medical Association and the National Education Association have cooperated through a Joint Committee on Health Problems in Education. Frequent symposiums on health of school children have been held at American Medical Association meetings. The Association has an active program of cooperation with educational agencies for better national health achieved through better health education and school health programs.

The second resolution likewise coincides with the views of physicians often expressed, that the present system of allotting state aid to schools and school districts in part on the basis of average daily attendance is pernicious, conducive to attendance by children who are harming themselves and menacing others and a temptation to the violation of sound sanitary principles for the school in increasing or maintaining subsidies.

The nation's leading public health organization does well to invite cooperation of the medical profession. Successful public health workers in official and voluntary agencies have long since learned that a cooperative medical profession is their strongest and best ally, but this idea has not seemed to permeate to certain leaders of the public health profession.

The two resolutions calling on the American Medical Association for cooperation represent but two in the many areas of agreement between the associations. Others include the movement for county health unit coverage, the fight for universal pasteurization, the better training of public health personnel with a consequent improvement in salaries and tenure, the extension of the merit system in public health official agencies, the advance of medical research and the perennial battle against quackery. The organizations representing the medical profession and the public health profession should face the public united in their areas of agreement, especially since there is a large overlapping in membership.

## COMBINED STREPTOMYCIN-POTASSIUM IODIDE THERAPY

Iodides cause tubercle bacilli to appear in the sputum of patients with pulmonary tuberculosis. Jobling and Petersen[1] showed that iodine neutralizes the ferment-inhibiting properties of unsaturated fatty acids in caseous materials, thus releasing fermentation or autolysis. This causes a liberation of the bacilli and their appearance in the sputum. Jobling thought that the same autolytic process might serve a useful purpose by facilitating solution and absorption of caseous matter in other parts of the body and might thus expose masked tubercle bacilli to the influence of chemotherapeutic agents.

In the light of this significant suggestion and in view of the relatively poor results obtained in the treatment of fibrocaseous tuberculosis with streptomycin alone,[2] Woody and Avery[3] of the Department of Pathology, Vanderbilt University, tested the combined effect of potassium iodide and streptomycin against established tuberculosis in guinea pigs.

Forty-six young guinea pigs ranging in weight from 350 to 450 Gm. were inoculated in the groin with 0.3 mg. of virulent tubercle bacilli (H37RV). Treatment was delayed till the end of the fourth week. Fifteen of the guinea pigs were then set aside to serve as untreated controls. Fifteen were given daily intramuscular injections of 37,500 micrograms streptomycin per kilogram of body weight, given in fractional doses at six hour intervals.

The remaining 16 guinea pigs were given the same doses of streptomycin plus 80 mg. potassium iodide daily by stomach tube. Treatment of both groups was continued for five weeks. Three weeks later, or at the end of the twelfth week of the infection, 13 of the 15 untreated controls were dead and 5 of the 15 streptomycin-treated guinea pigs had died, while only 1 of the 16 treated with streptomycin and potassium iodide had succumbed. Two animals of each group were then killed for histologic study. By the end of fifteen weeks, deaths from tuberculosis were: controls, 13 of 13 animals; streptomycin group, 6 of 13 animals, and streptomycin–potassium iodide group, 2 of 14.

In earlier groups all animals were killed at the end of four weeks of treatment. On gross examination the untreated controls and a group given only potassium iodide showed heavy tuberculous infection of all viscera. In the streptomycin-treated group, but 5 of the 10 guinea pigs showed a mild spread of tuberculosis to the internal organs. In the group treated with streptomycin and potassium iodide the internal organs were free from macroscopically demonstrable tuberculosis.

The results of these tests were so encouraging that combined streptomycin–potassium iodide therapy is now being tried with tuberculous patients.

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[1] Jobling, J. W., and Petersen, W.: J. Exper. Med., **19**: 383, 1914.

[2] Barnwell, J. B.: Am. Rev. Tuberc. **56**: 485, 1947.

[3] Woody, E., Jr., and Avery, R. C.: Science, **108**: 501 (Nov. 5) 1948.

# Current Comment

## EXTREME SALT EXCRETION

One of the inherent problems of the mammalian organisms is the conservation of water. The kidney excretes as little water as possible but as much as necessary to eliminate in solution the cellular metabolites. When the need for heat loss is minimal the skin likewise behaves like an integument designed to retain water, and the fluid loss through the intestines is ordinarily depressed by the effective absorption in the large intestine. This tendency for water retention is exaggerated in the kangaroo rat and the pocket mouse, two desert mammals whose renal excretion of salts has recently been studied.[1] The experimental animals were given dry grain without water for six weeks, after which the same grain (rolled barley) containing about 10 per cent sodium chloride was fed. They gained weight on the dry grain alone but lost weight when salt was added to the diet. The survival time of the kangaroo rats maintained on the salt-containing ration was about a week but, even then, the water content of the body tissues was not depressed. As much as 0.908 normal chloride was excreted in the urine on the salt diet period, which is one and one-half times the normal maximum for the laboratory rat, almost three times that of man, dog or goat. These data provide evidence of extraordinary effectiveness of the kidney in eliminating salts with minimal loss of water under extreme conditions of stress. Whether or not the usual pattern of exchange in the tubules is maintained under the foregoing experimental conditions should be determined.

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[1] Schmidt-Nielson, K.; Schmidt-Nielson, B., and Schneiderman, H.: Am. J. Physiol. **154**: 163 (July) 1948.

# ORGANIZATION SECTION

## *Official Notes*

### RESOLUTIONS BY THE AMERICAN PUBLIC HEALTH ASSOCIATION

The Governing Council of the American Public Health Association, at its Seventy-Sixth Annual Meeting, Boston, Nov. 10, 1948, adopted the following resolutions:

1. WHEREAS, The American Public Health Association is concerned with the health of the total community; and

WHEREAS, It has become increasingly clear that the school health program can contribute significantly to the over-all public health program; and

WHEREAS, Both education and health departments have great interest in the health of the school age child; and

WHEREAS, It is becoming increasingly apparent that where there is a high degree of mutual understanding and cooperation between departments of health and education, with the resultant pooling of the resources of both departments, good school health programs are being developed; therefore be it

*Resolved*, That the American Public Health Association join with the National Education Association and the American Medical Association and other groups in approving the principle of cooperative planning of health programs which involve children of school age.

2. WHEREAS, The allocation of the moneys to schools and school districts is based on a variety of formulas, among which is the classroom unit as computed by average daily attendance; and

WHEREAS, If funds are allotted on the basis of average daily attendance, school officials find it to their advantage strongly to promote daily attendance of all children at school; and

WHEREAS, The encouragement of children to attend school when they are ill has deleterious effects on the health of individual children and may be responsible for the spread of communicable diseases; therefore be it

*Resolved*, That the American Public Health Association join with the National Education Association, the American Medical Association and other groups in decrying this practice, and be it further

*Resolved*, That the National Council of State School Officers and the Association of State and Territorial Health Officers be urged to develop a plan of allotting tax moneys for educational purposes in a way that is not deleterious to the health of children.

## *Washington Letter*

*(From a Special Correspondent)*

Jan. 10, 1949.

### Labor Press Intensifies Health Insurance Campaign

The turn of the year witnessed intensification of organized labor's crusade for enactment of compulsory sickness insurance by the Eighty-First Congress, as manifested by articles, editorials and cartoons in union newspapers. The January 6 issue of *The Machinist*, which claims a circulation of 2,000,000, carried a "coupon" purporting to refute arguments against nationalization and urging union members to clip it out and "mail it or take it with you next time you go to see your family physician." An accompanying article charged that THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION refuses to publish anything favorable to health insurance.

*Trainman News*, official weekly of the Brotherhood of Railroad Trainmen and with an announced readership of 500,000, criticizes the special assessment voted by the American Medical Association House of Delegates and otherwise repeats stock criticism of the medical profession as supplied by the Committee for the Nation's Health. Incidentally, the "coupon" published in *The Machinist* invites physicians to write to the Committee for the Nation's Health literature supporting compulsory insurance. *CIO News*, in its final issue of 1948, reprinted an editorial from the *St. Louis Post-Dispatch* which expresses skepticism of the adequacy of voluntary prepayment plans.

### Three New Senators Watched on Health Legislation

Among the new Senators who were sworn in when the new Congress convened January 3, three in particular are expected to take prominent roles in consideration of prospective legislation on national health and social welfare. They are Hubert H. Humphrey of Minnesota, Paul H. Douglas of Illinois and Dr. Lester C. Hunt of Wyoming. All are Democrats and all were supported, in their campaigns, by organized labor. Dr. Hunt is the Senate's only dentist member (there are no physicians in that body). Humphrey, who holds a pharmacy degree, placed great emphasis on public health when he was mayor of Minneapolis. Another new Democrat member, Joseph Allen Frear Jr., of Delaware, is a member of the American Hospital Association and president of the Kent General Hospital Board in his home town of Dover, Del.

### Transfer of Veterans Hospitals Opposed by American Legion

The American Legion will fight transfer of the Veterans Administration medical department—including its 126 hospitals—to a "National Bureau of Health" as recommended by a Hoover Commission "task force." T. O. Kraabel, national rehabilitation director of the Legion, with offices in Washington, stated:

"The Legion holds that medical and hospital services of the best quality are essential not only to adequate identification and treatment of diseases but also as to exhaustive and correct descriptions for purposes of adjudicating veterans claims. This cannot be satisfactorily accomplished if medical and hospital services are separated from the administrative setup. . . . At present there are over 2,000,000 veterans of all wars suffering from service-incurred or aggravated disabilities. Total disability cases filed exeed 6,000,000. The American Legion supports the present VA hospital system and construction program as essential to meet future needs in respect to caring for these veterans. The Legion will vigorously oppose any action that will spell the disintegration or absorption of the Veterans Administration and the dilution or the devitalizing of the present program of the best possible medical and hospital care for veterans."

### Dr. Magnuson May Resign if Not Given Free Hand

Dr. Paul B. Magnuson, chief medical director of the Veterans Administration, has made it clear that he will resign rather than compromise principles of professional standards in operation of Veterans Administration's large medical and hospitalization program. On his return to Washington from a ten day inspection trip, he confirmed reports that pressure is being exerted within the Veterans Administration to effect certain changes, particularly in reference to location of hospitals. "There's likely to be a hell of a fight in the next few weeks to decide who's running this department," he declared. "I think I am," he added. Meanwhile, Dr. Magnuson announced establishment of the Veterans Administration's eleventh radioisotope diagnostic and treatment unit at the Nashville (Tenn.) Veterans Hospital. The newest facility for application of atomic medicine will be conducted in close cooperation with Vanderbilt University School of Medicine and the Nashville Deans Committee.

### Oak Ridge Institute Opened to Foreign Medical Researchers

Atomic Energy Commission has announced opening of radioisotope training facilities at Oak Ridge Institute of Nuclear Studies to a limited number of foreign scientists. First to take advantage of the plan are Dr. K. Aterman, of the department of anatomy, University of Birmingham (England), and P. S. Krishnan, of Madras, India, who has been a research associate in enzyme chemistry at Cornell University since he received his Ph.D. in biochemistry at that institution in 1947. Dr. Aterman came to this country for postgraduate study at Harvard Medical School on a Commonwealth Fund fellowship. The two scholars are members of the special class in technics of using radioisotopes in research that opened at Oak Ridge January 3. The course is one month in length.

# Medical Legislation

## STATE LEGISLATION

The legislature of the following states will meet in regular session during 1949.

| State | Convenes | Time Limit |
|---|---|---|
| Alabama | May 3 | 36 days |
| Arizona | Jan. 10 | 60 days |
| *Arkansas* | *Jan. 10* | *60 days* |
| California | Jan. 3 | None |
| Colorado | Jan. 5 | None |
| Connecticut | Jan. 5 | June 8 |
| Delaware | Jan. 4 | 60 days |
| Florida | Apr. 5 | 60 days |
| Georgia | Jan. 10 | 70 days |
| Idaho | Jan. 3 | 60 days |
| Illinois | Jan. 5 | None |
| Indiana | Jan. 6 | 61 days |
| Iowa | Jan. 10 | None |
| Kansas | Jan. 11 | 60 days |
| Maine | Jan. 5 | None |
| Maryland | Jan. 5 | 90 days |
| Massachusetts | Jan. 5 | None |
| Michigan | Jan. 5 | None |
| Minnesota | Jan. 4 | 90 days |
| Missouri | Jan. 5 | None |
| Montana | Jan. 3 | 60 days |
| Nebraska | Jan. 4 | None |
| Nevada | Jan. 17 | 60 days |
| New Hampshire | Jan. 5 | None |
| New Jersey | Jan. 11 | None |
| New Mexico | *Jan. 11* | *60 days* |
| New York | Jan. 5 | None |
| North Carolina | Jan. 5 | None |
| North Dakota | Jan. 4 | 60 days |
| Ohio | Jan. 3 | None |
| Oklahoma | Jan. 4 | 75 days |
| Oregon | Jan. 10 | 50 days |
| Pennsylvania | Jan. 4 | None |
| Rhode Island | Jan. 4 | 60 days |
| South Carolina | Jan. 11 | 40 days |
| South Dakota | Jan. 4 | 60 days |
| Tennessee | Jan. 3 | 75 days |
| Texas | Jan. 11 | 120 days |
| Utah | Jan. 10 | 60 days |
| Vermont | Jan. 5 | None |
| Washington | Jan. 10 | 60 days |
| West Virginia | Jan. 12 | 60 days |
| Wisconsin | Jan. 12 | None |
| Wyoming | Jan. 11 | 40 days |

### Massachusetts

**Bills Introduced.**—H. 167 proposes the enactment of a **voluntary system** for the payment of hospital, surgical operation, sickness, bodily injury and maternity benefits to employees. H. 261 proposes to amend the existing law so as to declare nonprofit hospital service corporations, medical service corporations and nonprofit medical service plans to be **charitable corporations.** H. 319 proposes the enactment of a **cash sickness compensation** act. H. 365 proposes that any veteran of World War II who graduated from any medical school on or before June 1948, and who served an internship of not less than one year in an approved Massachusetts hospital and was a resident of Massachusetts shall be entitled to take the **examination for a license** to practice medicine in the state. H. 440, to amend the law *relative* to **physical examination of school children,** proposes that tests of sight and hearing of school children shall be made by qualified physicians. H. 494, to amend the workmen's compensation act, proposes that the *record of the* ***history,*** *examination, diagnosis, prognosis* or *treatment* **of an employee** shall not be furnished, nor shall any of the information contained therein be furnished or disclosed, to any employer or insurer or to his or its agents, servants or attorneys by any doctor, physician, surgeon, nurse or other person who shall examine, treat or attend such employee unless the employee consents thereto in writing prior to such furnishing or disclosure. H. 499 and H. 915 to amend the workmen's compensation act, propose that physicians called as expert witnesses in workmen's compensation hearings shall be allowed **a reasonable fee** by the department for testifying and that such fee shall include reasonable amounts for examinations, diagnostic studies and reports as well as appearances and testimony and shall in no case be less than $35. H. 507, to amend the *workmen's compensation* act, proposes that impartial ***examinations prior to a hearing*** *shall be* granted only at the request of the employee, or following a hearing, in the discretion of the department or any member thereof, after opportunity for the employee to object to the impartiality of the physician and to present evidence thereon. H. 589, H. 590 and H. 1003, to amend the law relating to **the sale of cosmetics,** propose that no person other than a licensed hairdresser shall sell or offer for sale at retail, or dispense or give away any cosmetic containing any harmful chemical. Harmful chemical is defined to include ammonium hydroxide, thioglycolic acid and formaldehyde. H. 592 proposes that any duly registered physician licensed to practice medicine and surgery in the state shall be entitled to treat his or her patients in any public or semipublic hospital, that **no physician shall be discriminated against** or refused the right of practicing his profession in any public hospital because he is not a member of the Massachusetts Medical Society and that no physician shall be denied the use of such hospital because of his religion, nationality, race or sex. H. 733, H. 1138 and H. 1475 are comprehensive proposals for the licensing and regulating *of persons and institutions desiring to engage in* **animal experimentation** upon live animals. H. 851 proposes, among other things, that the trustees of the University of Massachusetts shall establish and maintain **two medical schools,** one to be located in the eastern part and the other in the western part of the state. H. 913, to amend the workmen's compensation act, proposes that any physician who has **testified either for an insurer or a claimant at least three times** in the preceding twelve months, shall not be eligible to be appointed by the compensation commissioner as an impartial physician. H. 1000 proposes that all persons engaged in the **preparation of food for human consumption** shall be required to undergo annually physical examinations by reputable *practicing physicians* in the *employment of the* state department of public health and shall be required as a condition to continuing work *to* be certified *by* such examining physicians to be *free from any and all communicable diseases or diseases endangering* the public health. H. 1010 proposes conditions under which graduates of the College of Physicians and Surgeons who received the degree of doctor of medicine prior to January 16, 1947 may be admitted to **examination for medical licensure** in the state. H. 1011 proposes that *any person who is a resident of the commonwealth and who matriculated* at any medical school in the commonwealth beginning with January 1913, may, under certain circumstances, be admitted to examination for **medical licensure in the state.** This proposal apparently is also for the benefit of graduates of the College of Physicians and Surgeons. H. 1446 proposes to require **owners or managers of restaurants** to display a certificate for each employee showing such employee to be free from communicable disease. H. 1530, to amend the law *relative to the making* ***of tests of sight of school children,*** proposes that *the tests of sight shall be made by the teachers or registered optometrists,* tests of hearing shall be made by the teachers, and examinations of feet shall be *made by* the school physicians. H. 1875 proposes that the sale of any drug, medicine, instrument or article whatever, one result of the use of which is or may be **the prevention of conception,** shall be presumed to have been made in violation of the law relative to criminal sales. S. 182 proposes that **a registered physician or surgeon or osteopath** shall not, without the consent of his patient, be examined in a civil or criminal action as to any information acquired in attending such patient which was necessary to enable him to prescribe or act for his patient. S. 266 proposes that whoever experiments or **operates** in any manner whatsoever **upon any living dog or cat** for any purpose other than the healing, curing or sterilizing of said dog or cat shall be punished by fine or imprisonment or both. S. 404 proposes the creation of a special commission to make a survey and study of the subject of **spastic paralysis.** S. 463 proposes the creation of a board of **examiners of chiropractic** and proposes to define chiropractic as "The science of restoring the proper neuro-muscular dynamic relationship along the spinal column by the correction of misalignment or subluxations of the vertebral column, such restoration and correction being made by hand adjustment only. The practice of chiropractic shall not include operative surgery, prescription or use of drugs or medicine, or the practice of obstetrics, except that in such practice the x-ray may be used solely for the purpoe of examination."

### North Dakota

**Bills Introduced.**—H. 41 proposes to authorize a court to appoint **expert witnesses** in any proceeding when the court deems such expert testimony desirable. S. 28 proposes to require every physician or other person **authorized by law to practice obstetrics** who attends a pregnant woman in North Dakota for conditions relating to pregnancy during the period of gestation or at delivery to take or cause to be taken a sample of blood of such woman at the time of the first professional visit or within ten days thereafter and to submit such sample to an approved laboratory for a standard serologic test for syphilis.

# Coming Medical Meetings

*Annual Congress on Industrial Health, Chicago, Drake Hotel, Jan. 18-19.* Dr. Carl M. Peterson, 535 N. Dearborn St., Chicago 10, Secretary.

Annual Congress on Medical Education and Licensure, Chicago, Palmer House, Feb. 7-8. Dr. Donald G. Anderson, 535 N. Dearborn St., *Chicago 10, Secretary.*

National Conference on Rural Health, Chicago, Palmer House, Feb. 4-5 Dr. F. S. Crockett, 535 N. Dearborn St., Chicago 10, Chairman.

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Alaska Territorial Medical Association, Juneau, March 3-5. Dr. William P. Blanton, Box 2569, Juneau, Secretary.

A[illegible] Society for the Advancement of Plastic and [illegible] New York, Hotel Waldorf-Astoria, March 4. [illegible], 291 *Whitney Ave., New Haven 11,* Conn., Secretary.

American Society for Surgery of the Hand, Chicago, Jan. 21-22. Dr. Joseph H. Boyes, 1401 S. Hope St., Los Angeles 15, Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, Palmer House, March 1-4. Dr. H. Kenneth Scatliff, 30 N. Michigan Ave., Chicago 2, Secretary.

International Post-Graduate Medical Assembly of Southwest Texas, San Antonio, Jan. 25-27. Dr. John J. Hinchey, P. O. Box 2445, San Antonio, Secretary.

New Orleans Graduate Medical Assembly, New Orleans, Municipal Auditorium, March 7-10. Dr. W. D. Beacham, 1430 Tulane Ave., New Orleans, Secretary.

Southeastern Allergy Association, Durham, N. C., Washington-Duke Hotel, Jan. 22-23. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia, S. C., Secretary.

Southeastern Surgical Congress, Biloxi, Miss., Jan. 24-27. Dr. Benjamin T. Beasley, 45 Edgewood Ave. S.E., Atlanta 3, Ga., Secretary.

Western Section American Urological Association, Coronado, Calif., Hotel del Coronado, Jan. 17-19. Dr. Adolph A. Kutzmann, 1930 Wilshire Blvd., Los Angeles 5, Secretary.

# GOVERNMENT SERVICES

## ARMY

### CAMPAIGN TO MEET URGENT MEDICAL MAN POWER REQUIREMENTS

The Surgeon General has announced a program to unite professional and civic support in every community behind a campaign to meet urgent man power requirements of the Army Medical Department through volunteers. The program involves setting up professional man power committees in communities and coordinating them with the existing military man power committees which are already helping the general recruiting campaign. The medical program is part of the drive to obtain physicians, dentists, nurses and other medical specialists to meet the needs for medical care of the services.

The Selective Service Act provides that "no person shall be inducted until adequate provision shall have been made for medical care." To date, the medical departments are meeting their obligation to provide adequate medical care to men coming into the service. But as the physicians and dentists now on duty finish their service and are separated, others must be obtained to replace them. This shortage of medical personnel, if it continues, is viewed as a serious threat to national defense. The new program is an effort to obtain enough volunteers to meet the need.

The program was worked out by the Army Medical Department in cooperation with the Army and Air Force Recruiting Service. In communities, outstanding physicians, surgeons, dentists and other leading medical specialists will be asked to serve on professional man power committees, which will be set up as subcommittees to the military man power committees which are already assisting the recruiting service. The cooperation of existing Army advisory committees also will be sought, particularly in the larger cities.

The plan for civilian aid to medical personnel procurement has been developed in consultation with the national societies representing the professional fields involved. It will seek the help of local units of professional organizations and enlist the cooperation of local chapters of veteran, civic and fraternal groups which have been helping the services in their recruiting campaigns. The Army Medical Department will maintain liaison with national professional societies and associations to coordinate procurement programs and national organization policy. National advertising and publicity will be used to focus public attention on achievements and opportunities in the medical departments of the services.

### CIVILIAN RESIDENCY AND INTERN PROGRAMS

Applications for participation in the civilian residency and the civilian intern training programs by physicians will be accepted by the Army Medical Department beginning immediately. The two programs permit the further training of six hundred physicians under the sponsorship of the Army Medical Department.

The civilian residency training program permits the commissioning in the Regular Army of three hundred selected graduates of medical schools approved by the American Medical Association, who have satisfactorily completed an acceptable internship and have been accepted for a residency at an approved institution. Applicants accepted by a Board of Medical Department Officers will be given an opportunity to serve a residency of their own choice in any civilian hospital approved by the American Medical Association. Physicians selected to participate in the civilian residency program will be commissioned as first lieutenants or captains. In addition to the regular pay and allowances of their grades, the physicians will receive $100 per month which has been authorized for volunteer Army medical officers.

Selection of applicants for residencies will be completed by April 1. The civilian residency program for the fiscal year 1950 will get under way in July. This program has been established to provide specialty training to physicians interested in a career in Army medicine. All physicians accepting civilian residencies will be required to serve one year on active duty for each year of formal training received.

The civilian intern training program also permits the selection of three hundred candidates for participation. Training will be open to selected potential medical school graduates who plan to begin internship between Jan. 1 and July 1. The applicants must fulfil the requirements necessary for appointment as first lieutenants in the medical corps reserve and must have been accepted for internship training in a civilian hospital approved by the American Medical Association. Candidates selected to participate in the civilian intern training program will complete their internships as officers on active duty with full pay and allowances in the grade of first lieutenant. Physicians receiving training under this program will be required to serve one year on duty status as officers in the Regular Army Medical Corps for each year of formal training received.

Physicians interested in either the civilian residency program or the civilian intern training program can procure application forms from the Surgeon General, Attention: Chief, Procurement Branch, Personnel Division, Washington, D. C.

### CONSULTANTS TO THE EUROPEAN COMMAND IN 1948

The Surgeon General's Office has been carrying out a program designed to bring to the Army Medical Department in the European Area the latest advances in the field of medicine and in so doing assigned during 1948 the following civilian consultants to aid in this work:

| Name | Residence | Specialty |
|---|---|---|
| | JANUARY | |
| Finney, George | Eccleston, Md. | Surgery |
| Martin, Walter B. | Attica, N. Y. | Medicine |
| Smith, Beverly, Col. | Washington, D. C. | Neuropsychiatry |
| | FEBRUARY | |
| Bost, Frederic C. | San Francisco | Orthopedics |
| Marble, Alexander | Boston | Medicine |
| Rosenberg, Seymour J. | Washington, D. C. | Neuropsychiatry |
| | MARCH | |
| Balser, Benjamin H. | New Rochelle, N. Y. | Neuropsychiatry |
| Gordon, Burgess | Philadelphia | Medicine |
| Hamilton, Frank E., Col. | Washington, D. C. | Surgery |
| Scheie, Harold | Philadelphia | Ophthalmology |
| | APRIL | |
| Bruton, Ogden C., Lieut. Col. | Washington, D. C. | Pediatrics |
| Lady, William T. | Washington, D. C. | Obstetrics & Gynecology |
| Walsh, Maurice N. | Rochester, Minn. | Neuropsychiatry |
| Wells, Warner L. | Raleigh, N. C. | Surgery |
| | MAY | |
| Cope, Oliver | Boston | Surgery |
| Curtis, Arthur C. | Ann Arbor, Mich. | Medicine |
| Hoagland, Tomas V. | Detroit | Neuropsychiatry |
| Soto-Hall, Ralph | San Francisco | Orthopedics |
| | JUNE | |
| Duncan, Garfield G. | Philadelphia | Medicine |
| French, A. James | Ann Arbor, Mich. | Pathologist |
| Leonard Thomas M. | Washington, D. C. | Obstetrics & Gynecology |
| Margolin, Sydney G. | New York | Neuropsychiatry |
| Stiefel, Richard A. | Battle Creek, Mich. | Surgery |
| | JULY | |
| Beecher, Henry K. | Boston | Anesthesia |
| Godard, C. H. | Pasadena, Calif. | Neuropsychiatry |
| Greear, James N. | Washington, D. C. | Ophthalmology |
| Leedham, Charles, Col. | Augusta, Ga. | Medicine |
| Porter, William B. | Richmond, Va. | Medicine |
| | AUGUST | |
| Berlien, Ivan C. | Detroit | Neuropsychiatry |
| Hixson, Clayton | Washington, D. C. | Obstetrics |
| Shull, Harrison J. | Nashville, Tenn. | Medicine |
| Stark, Jessee D. | New York | Radiology |
| | SEPTEMBER | |
| Ambler, John V. | Denver | Medicine |
| Barr, David | New York | Medicine |
| Daniels, Luman E. | Denver | Neuropsychiatry |
| Hart, Vernon L. | Minneapolis | Orthopedics |
| | OCTOBER | |
| Haden, Russell L. | Crozet, Va. | Medicine |
| Stewart, George A. | Baltimore | Surgery |
| Talkington, Perry C. | Dallas, Texas | Neuropsychiatry |
| Thomas, Atha | Denver | Orthopedics |
| | NOVEMBER | |
| Hench, Philip S. | Rochester, Minn. | Medicine |
| Kern, Richard A. | Philadelphia | Medicine |
| Tobin, William J. | Washington, D. C. | Orthopedics |

# NAVY

## FIRST ACTIVE DUTY AS INTERNS

The following lieutenants (jg) in the Medical Corps Reserve have reported for their first active duty as interns under the Navy Medical Training Program at the institutions indicated:

| Name | Residence | Destination |
|---|---|---|
| Allen, Alan W. | Santa Monica, Calif. | Santa Monica Hospital, Santa Monica, Calif. |
| Andrews, William J. | Oak Park, Ill. | Cook County Hospital, Chicago |
| Beasom, Ralph D. | Glendale, Calif. | California Lutheran Hospital, Los Angeles |
| Benedict, Paul F. | Vevay, Ind. | Indiana University Medical Center, Indianapolis |
| Bianco, Anthony J., Jr. | West Duluth, Minn. | St. Mary's Hospital, Duluth |
| Brady, Luther W. Jr. | Bethesda, Md. | Jefferson Hospital, Philadelphia |
| Brown, Crawford S. | Washington, D. C. | Germantown Hospital, Philadelphia |
| Burke, Donald R., Jr. | Seattle | King County Hospital, Seattle |
| Egge, Robert K. | Maplewood, N. J. | Newark City Hospital, Newark |
| Fyler, Donald C. | Silver Spring, Md. | Bellevue Hospital, New York |
| Gallagher, Raymond C. | San Jose, Calif. | Highland-Alameda County Hospital, Oakland, Calif. |
| Gill, Robert J. | Philadelphia | Pennsylvania Hospital, Philadelphia |
| Gilpin, Clifford R. | Evanston, Ill. | St. Luke's Hospital, Kansas City, Mo. |
| Harris, Jack K. | Jacksonville, Fla. | Roper Hospital, Kansas City, Mo. |
| Ireland, Roger G. | Denver | Metropolitan Hospital, Welfare Island, N. Y. |
| Marsten, Edgar L. | Silver Spring, Md. | Gallinger Municipal Hospital, Washington, D. C. |
| Nelson, William C. | Amery, Wis. | Minneapolis General Hospital, Minneapolis |
| Pearson, Linwood J. | Hellertown, Pa. | Germantown Hospital, Philadelphia |
| Rowe, Daniel S. | Shamokin, Pa. | Jefferson Hospital, Philadelphia |
| Schoetzau, Warren W. | North Bergen, N. J. | Metropolitan Hospital, Welfare Island, N. Y. |
| Schubert, Justin C. | North Manchester, Ind. | Santa Monica Hospital, Santa Monica, Calif. |
| Smith, Chandler S. | Robersonville, N. C. | Boston City Hospital, Boston |
| Smith, Grafton A. | Tulsa, Okla. | University of Minnesota Hospitals, Minneapolis |
| Specht, Harry O. J. | St. Louis | Indiana University Medical Center, Indianapolis |
| Whitehorn, Clark A. | Detroit | Detroit Receiving Hospital |

## SURVEY OF LEPERS IN PACIFIC ISLANDS

The Navy Medical Department is making a survey of the one hundred and twenty island communities in the Caroline, Marshall, Palau and Mariana chains of islands in the Pacific Ocean to find how many natives have leprosy and other infectious diseases. For this purpose, the U. S. S. *Whidbey* has been fitted out with examining and operating rooms, a laboratory and roentgenologic and dental departments. In the first two months of the survey, according to Walter Sullivan in the *New York Times*, 65 lepers have been brought to the center on Tinian Island, a vine-buried wilderness where during the war six great air strips were aimed at Tokyo, and where from two pits were loaded the atomic bombs that were dropped on Hiroshima and Nagasaki. Finding lepers in this 2,000,000 miles of ocean area is a big job. The leper colony, which has been in operation only about a month, is temporarily housed in a village built by Americans for the fishermen of Okinawa. The Naval medical officer who volunteered for service with these lepers is Lieutenant (jg) Jack W. Millar of Palo Alto, Calif.

## DR. HOWARD T. KARSNER APPOINTED MEDICAL RESEARCH ADVISER

Dr. Howard T. Karsner, professor of pathology at Western Reserve University, Cleveland, has been appointed medical research adviser to the Surgeon General of the Navy and to the director of the research division of the Navy Bureau of Medicine and Surgery. He is the fifth Navy Department employee to be appointed to a Civil Service position with a salary of more than $10,000 a year under the provisions of Public Law 758 of the 80th Congress, approved June 24, 1948. The law authorized the Navy to fill thirteen positions in the professional and scientific services with a $10,000 to $15,000 salary range.

Dr. Karsner holds a degree of M.D. from the University of Pennsylvania and has studied pathology in Berlin and Vienna. During World War I he served as a captain in the medical reserve corps of the U. S. Army. He is the author of a work on "Human Pathology." As staff consultant, he will assist and advise the Surgeon General concerning evaluation, coordination and development of the Navy Medical Department's research program.

## POSTGRADUATE INSTRUCTION

The following medical officers have been nominated for postgraduate instruction at the institutions indicated: Comdr. James A. Grindell, Washington, D. C., to Armed Forces Staff College, Naval Base, Norfolk, Va.; Lieut. Comdr. John T. M. Giannini, Shepherdsville, Ky., to a fellowship in plastic surgery at various Memphis hospitals on the plastic surgery service of Dr. William M. Adams of Memphis; Lieutenants (jg) Robert E. Fultz, Richmond, Va., to a residency in obstetrics and gynecology at the Naval Hospital, San Diego, Calif., and James H. Harris, Rochelle, Ill., to a residency in obstetrics and gynecology at the Naval Hospital, San Diego, Calif.

## PERSONALS

Lieut. (jg) Thomas J. Coleman of Providence, R. I., has transferred from an active reserve status to the Regular Navy Medical Corps.

Lieut. Comdr. Edward R. Hubbard of Taunton, Mass., and Lieut. (jg) Donald O. Ward of Jamaica Plain, Mass., have been nominated respectively for active duty in the Naval Reserve at the Naval Hospital, Portsmouth, Va., and to a residency in pediatrics in Children's Hospital, Boston.

# AIR FORCE

## OVERSEAS POSITIONS FOR PHYSICIANS

The Air Force is offering overseas opportunities to registered physicians in a civilian capacity. Especially desirable are applicants who have completed a tour of at least two years' active duty with the military service. They will serve both military and civilian personnel. The base pay for these positions is $6,235.20 per annum with a cost of living allowance for each theater. Applicants are required to remain overseas in most theaters for two years. Travel to and from the theater is arranged and provided by the Air Force. Application should be made direct to the Field Extension Office, Overseas Affairs Division, Directorate of Civilian Personnel, Wright-Patterson Air Force Base, Dayton 1, Ohio. Information regarding employment and living conditions will be furnished on request.

## PSYCHOLOGIC TESTS FOR AIRMEN

A group of civilian specialists in psychiatry and psychology, and surgeons of the larger air commands convened at the Air Surgeon's office in the Pentagon, Washington, D. C., December 18-20 to select those psychologic tests which will aid in the selection of pilots. The civilian consultants in the group were: Drs. Russel V. Lee, Palo Alto Clinic, Palo Alto, Calif.; W. Paul Holbrook, Tucson, Ariz.; Laurence F. Shaffer, Columbia University, New York; Walter C. Shipley, Wheaton College, Norton, Mass.; Robert G. Bernreuter, Pennsylvania State College, State College, Pa.; Molly Harrower, New York; Donald W. Hastings, University of Minnesota, Minneapolis; John M. Murray, New York, and Frank Freemont-Smith, New York.

# PHYSICIANS SEPARATED FROM SERVICE

## ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

### Alabama

Igou, Rufus A. Jr..........Fort Payne

### Arkansas

Baldridge, Graves D........Los Angeles
Bell, William K..................Benton
Fairley, Julian R................Osceola
Jefferies, William L.........Little Rock
McMillan, Orin P...........El Dorado
Thompson, Robert J...............Paris

### California

Bennett, James H........San Francisco
Gable, Tom P.......................Vista
Griffin, Loyal M. Jr............Oakland
Hadley, Henry L............Los Angeles
Hair, Charles M...........Los Angeles
Henry, William N.........Beverly Hills
Jarrett, Joseph C.........San Francisco
Plumb, Hugh J. Jr...........Santa Ana
Smith, Eden M.............Los Angeles
Sumner, Robert H...........San Diego

### Colorado

Zaugg, Frederick B....Colorado Springs

### Connecticut

Hagedorn, Maxwell E....East Hartford
Lena, Hugh F. Jr..........New London
Mathews, Hugh J. Jr...........Stanford

### Florida

Massey, George H...............Quincy
Rogers, James S. Jr.........Gainesville

### Georgia

Dickens, Benjamin F.........St. Marys
Jones, Rudolph W. Jr...........Macon
Mickel, Carey A. Jr..............Atlanta
Middlebrooks, Tracy W..........Macon

### Illinois

Cooper, Marvin E..............Chicago
Forrest, Russell A..............Quincy
Gattas, Fred A..................Chicago
Goldberg, Arthur M............Chicago
Golum, Abraham...............Chicago
Lownik, Felix J.................Chicago
Narsete, Eugene M.............Chicago
Reynolds, William E............Chicago
Stone, Richard W..............Chicago
Swanstrom, Harry C. Jr........Chicago
Vycital, Richard O............McHenry
Zannini, John J...............Waukegan

### Indiana

Henry, Alvin L...............Seymour
Jackson, John F............Fort Wayne
Kenyon, Omar A. Jr.........Fort Wayne
Kerrigan, William F........Connersville
Schroeder, Henry R. Jr.....Washington
Sheedy, John A.............Indianapolis

### Iowa

Mighell, Scott J..............Lake City

### Kansas

Lovett, Paul A...............Pittsburgh
Wherry, Harry L...............Mission

### Kentucky

Hayes, Oscar J...................Berea

### Louisiana

Gaethe, George............New Orleans

### Maine

Hall, Charles A.................Castine

### Maryland

Elder, John D. Jr...........Catonsville
Milan, Albert R..............Baltimore

### Massachusetts

Brooks, John R.............Cambridge
Bullard, John C.............Dartmouth
Cavan, David J...............Haverhill
Goldthwait, David A...........Medfield
Goodale, Walter T.............Weston
Haley, Warren D..............Medford
Kunan, Richard E............Holbrook
Michaud, Raymond A...........Beverly
O'Brien, James J...............Malden
Paull, David P....................Essex
Steele, Kenneth C............Springfield

### Michigan

Donaldson, David D...........Dearborn
Hendricks, Charles H..........Kalkaska
Horrigan, Thomas F. Jr.........Detroit
Horvath, James J...............Detroit
Osborn, Samuel..............Ann Arbor
Tappan, William M.............Holland

### Minnesota

Ellering, Jerome B...........St. Cloud
Larson, Oliver E..................Elgin
Towne, Russel E..............St. Cloud
Ylvisaker, John R..............Mankato

### Mississippi

James, Dewitt B..............Midnight
Simmons, Schubert B.......Bay Springs

### Missouri

Koppenbrink, Walter E. Jr..Higginsville
Neumann, Roland F. Jr........St. Louis
Simon, Sanford.............Kansas City

### Montana

Hanley, William J..............Billings
Pennepacker, Joseph S. Jr.......Billings
Zuelke, Paul E.................Alberton

### Nebraska

Beethe, Raymond C............Lincoln

### New Hampshire

Baroody, Philip C...........Manchester
Bowen, John R............Somersworth
Connolly, Edward P.............Dover
Wilson, William W.........Portsmouth

### New Jersey

Elwell, Robert W...............Camden
Ianacone, Sam J...............Paterson
Mintz, Julius...........North Plainfield
Pratt, Loring W..............Westfield
Spoor, Herbert J.......Jackson Heights

### New Mexico

Knowlton, Norman P. Jr....Los Alamos
Smith, Daniel E................Carlsbad

### New York

Achilles, William E.........New York
Benitez, Roberto E...........Brooklyn
Blancato, Louis S...........New York
Cheney, Joseph C.............Brooklyn
Cronin, David L..............New York
Hoffman, Julius...................Bronx
LaBarbera, Thomas............Brooklyn
Miles, Thomas V..............Brooklyn
Mitchell, James A...........New York
Parks, Robert E............Hempstead
Reid, Charles D...............Syracuse

### North Carolina

Jennings, Royal G. Jr.......Thomasville
Little, Filas J. Jr..............Concord
Phillips, Marvin W............Asheboro

### Ohio

Beman, Floyd M.............Columbus
Bennett, Hugh N.................Poland

### Ohio—Continued

Berens, James J.............Cincinnati
Franley, Harold C. ...........Cleveland
Garrison, George H...........Columbus
Metcalf, DeForest W.........Ashtabula
Niesen, Frank J.............Cincinnati
Nolan, James R...............Norwood
Orfirer, Alexander P.........Cleveland
Shirkey, Harry C.............Cincinnati
Snider, Edwin F...........Bellefontaine
Sprang, Harry E..............Crestline
Staley, Charles J..............Columbus
Werb, Theodore J.............Cleveland
Wilson, Joseph N......No. College Hill
Wool, Max L.....................Dayton

### Oklahoma

Brown, Arthur M. Jr.........Muskogee
Hall, Kenneth E.................Shidler

### Oregon

Larson, Wilbur E.............Redmond
McNiece, Kenneth J...........Portland
Martin, Daniel M..............Portland
Pennington, Merle.............Sherwood

### Pennsylvania

Adams, Andrew B....Huntington Valley
Allen, Wayne H.................Athens
Brown, Joseph S.............Lewistown
Fullerton, Harry W. Jr.....Philadelphia
Janora, Casper C.............Nanticoke
McKnight, Robert S.........New Castle
Ravdin, Robert G...........Philadelphia
Reiner, Charles B..........Philadelphia
Roberts, Roy R............Deep Valley
Schumacher, Forrest V.........Bellevue
Shore, Seymour M.........Philadelphia
Svedberg, Arthur H.........McKeesport
Weiss, Albert J. .............Bethlehem
Wenhold, Roy A........Trumbauersville

### Texas

Butler, Alan W. Jr..............Marta
Erhard, Peter S..............Galveston
Hawkins, Elmer J...........Sweetwater
McGrede, Henry C.......Sulphur Springs
Mullinaux, Ernest B.........San Antonio
Powell, Eugene V. Jr.............Waco

### Vermont

Beaudette, Robert P..........Burlington

### Virginia

Bond, Vernard F. Jr.......S. Arlington
Buchanan, Franklin T...........Bristol
Robinson, Charles............Richmond
Tucker, Grattan H. Jr........Chase City
Wade, Frank A.................Roanoke

### West Virginia

Weisman, Samuel...............Parsons

### Wisconsin

Akwa, Carl M...............Milwaukee
Cohen, David A.............Milwaukee
Everest, Paul D..................Merrill
Hodgson, Paul E............Wauwatosa
Irvin, John M...............Wauwatosa
Meyer, Bertram J............Milwaukee
Puestow, Robert C.............Oshkosh
Sievers, David J.................Merrill
Silber, Earl N................Milwaukee
Smirl, Warren G.............Waukesha
Tiholiz, Ivan C...............Milwaukee
Welbourne, Raymond P......West Allis

### Canada

Belter, Lester F.............Edmonton

### Puerto Rico

Dalmau, Gumersindo B......Rio Piedras

# Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

## CALIFORNIA

**Society News.**—Dr. Carroll J. Bellis, Long Beach, addressed the Southeast Branch of the Los Angeles County Medical Association on the "Management of Acute Bowel Obstructions" on January 4.——The Los Angeles Society of Allergy elected Dr. Hyman Miller, Los Angeles, president, and Dr. M. Coleman Harris, Beverly Hills, secretary-treasurer to take office at its January meeting.

**Spastic Disease Center.**—A $1,000,000 center for the relief of infantile paralysis, multiple sclerosis, arthritis and other neuromuscular diseases was opened in November in the former Santa Monica Ambassador Hotel. It is one of four units of the Kabat-Kaiser Institute for the rehabilitation of sufferers from spastic diseases. Other units are situated in Washington, D. C., Oakland and Vallejo. The center's equipment includes swimming pools and a gymnasium.

**Personals.**—Dr. Kenneth W. Haworth, formerly health officer of the Humboldt County Health Department, has become the first full time health officer of Napa County.——Dr. Lowell S. Goin, chief radiologist, Queen of Angels Hospital, Los Angeles, has been appointed a member of the National Advisory Cancer Council for three years to assist in formulating plans and policies of the National Cancer Institute at Bethesda, Md., and to review applications for aid in cancer control and research. Dr. Goin is a past president of the California Medical Association, the American College of Radiology and the Radiological Society of North America.

## CONNECTICUT

**In Memory of Dr. Cushing.**—A portrait bust of Dr. Harvey Cushing, the gift of Miss Malvina Hoffman, sculptor, was unveiled in the Historical Library of Yale University School of Medicine, New Haven, January 15. The casting of the bronze was made possible by the Associates of the Yale Medical Library.

**Hospital Trustees Conference.**—Representatives of 38 Connecticut institutions will meet at the Yale University School of Medicine, New Haven, January 25 at the first Connecticut Hospital Trustees Conference sponsored by the Connecticut Hospital Association and Yale University. The general theme for the conference will be local and regional planning for hospitals. Increased hospital costs, hospitalization plans for welfare cases and hospital programs for postgraduate medical education will be under discussion. Graham L. Davis, Battle Creek, Mich., past president of the American Hospital Association, will speak at the luncheon on postgraduate medical education. Among other speakers will be Ira V. Hiscock, Sc.D., New Haven; C. Rufus Rorem, LL.D., Philadelphia; William H. Horton, Windsor; William H. Putnam, Hartford; Gilbert L. King, Bridgeport, and Drs. Albert W. Snoke and William R. Willard of New Haven.

## DISTRICT OF COLUMBIA

**Medical Chapter of Reserve Officers Association.**—The Reserve Officers Association has established a medical chapter in the District of Columbia Department. Brigadier General Edward A. Evans, national executive director of the association, and Lieutenant Colonel Thomas H. King, president of the District of Columbia Department, officiated at the opening of the chapter at a luncheon at the Army-Navy Club. The charter members of the chapter are: Don. S. Knowlton, Commodore, U. S. N. R.; S. Ross Taggart, Colonel, Surgeon, D. C. National Guard; James B. Mason, Colonel, M. C. Reserve; Raymond Holden, Captain, U. S. N. R.; Luther Gray, Lieutenant Colonel, M. C. Reserve; F. Daniel Suttenfield, Lieutenant Colonel, M. C. Reserve; C. Lee Miller, Major, M. C. Reserve; Francis Threadgill, Major, M. C. Reserve; William Billingsley, Jr., Lieutenant, U. S. N. R., and Matthew Stroup, Captain, M. C. Reserve. The interim officers are Lieutenant Colonel Suttenfield, president, and Lieutenant William K. Billingsley Jr., secretary-treasurer. At a meeting December 9 it was decided that all reserve officers in the medical branches of all services will be eligible for membership.

## ILLINOIS

**Joint Meeting of Doctors and Lawyers.**—The Knox County Medical Society and the Knox County Bar Association held their first joint meeting in forty years December 16 in Galesburg. Mr. J. William Holloway Jr., director of the Bureau of Legal Medicine and Legislation, the American Medical Association, Chicago, spoke on "Legal Medicine and the Professions." A lengthy discussion period followed.

**Personals.**—Dr. Myron J. Tremaine, Evanston, has been presented the degree of Commander with Swords in the Order of Orange-Nassau by the Netherlands Government. Dr. Tremaine, who was in charge of medical activities of the 15th Army during the late war, was accorded the honor "in recognition of excellent service on behalf of the Netherlands government and great collaboration with the Netherlands military forces both during and after the liberation."

### Chicago

**Rheumatic Fever Research Institute.**—The Chicago Heart Association has made a grant of $25,000 to the Rheumatic Fever Research Institute of Northwestern University Medical School from its fund established as a memorial to Morris E. Fishbein Jr., who died as a result of rheumatic fever. Two new laboratories of the institute were recently completed with the aid of another grant of $25,000 from the James Foundation of New York.

**Decrease in Deaths from Tuberculosis.**—According to the Tuberculosis Institute of Chicago and Cook County, the 1948 toll of tuberculosis deaths in Chicago will be about 9 per cent fewer than in 1947. During the first ten months of this year deaths totaled 1,081 as compared with 1,186 for the same period in 1947. However, the number of reported cases shows an increase: In the same period cases reported increased from 3,763 in 1947 to 3,921. During 1948 the institute cooperated with the Municipal Tuberculosis Sanatorium and gave more than 250,000 free chest roentgen examinations in Chicago and 50,000 in the county outside the city.

**Report on Poliomyelitis in Chicago.**—According to the Chicago Health Department, a report on poliomyelitis during the last ten years indicates that nearly 98 per cent of poliomyelitis in Chicago is a mild, widespread disease of young children that leaves no residual paralysis. The report shows that the disease strikes most strongly children aged 1½ to 3 years. Multiple cases of the disease in a family are the rule rather than the exception when there are children from 1½ to 8½ years old in the home. Chicago's data for the period show no significant correlation between climate and the incidence of poliomyelitis.

**Northwestern Honors Dr. Schmidt.**—Dr. Louis E. Schmidt, a member of the Northwestern University Medical School faculty for more than fifty years, was tendered a reception by the university on his eightieth birthday January 8. More than five hundred friends and associates attended. Dr. Schmidt was graduated from Northwestern University Medical School in 1895, and became one of the first doctors in the nation to practice urology as a medical specialty. From 1931 to 1942 he was active in Chicago's campaign for the eradication of syphilis. The present Lewis E. Schmidt Clinic at Northwestern is a consolidation of two previous clinics with which he was associated. Dr. Schmidt became emeritus professor of urology and retired as chairman of the department in May 1947.

## INDIANA

**Personal.**—Dr. Marvin H. Sandorf, a practicing physician of Indianapolis, was among those passing the Indiana Bar Examination in October 1948. Dr. Sandorf is a graduate of Loyola Medical School and a former resident physician at Cook County Hospital, Chicago. He received his LL.B. degree from Tennessee Law School.

**Dr. Ramsey to Edit State Journal.**—Dr. Frank B. Ramsey, Indianapolis surgeon, became editor of the *Journal of the Indiana State Medical Association*, succeeding Dr. E. M. Shanklin of Hammond, who became editor emeritus after sixteen years of service as editor. Dr. Alexander W. Cavins of Terre Haute was named associate editor, the position held previously by Dr. Ramsey.

**Public Relations Field Secretary.**—Larry Richardson, former newscaster over Radio Station WIBC, Indianapolis, has been appointed field secretary of the Indiana State Medical Association. He is a graduate of Indiana University and has been a teacher of radio at Butler University at Indianapolis. Mr. Richardson will assist in developing a public relations program for the association, will speak before lay groups and assist the committee on postgraduate education.

## KANSAS

**Public Health Appointments.**—The Kansas State Board of Health has appointed Dr. Harold G. Nelson, a graduate of the University of Kansas School of Medicine, director of the Division of Epidemiology. He has served as instructor in the department of bacteriology and immunology at the University of Kansas, and from 1946 to 1948 was in charge of the clinical laboratory and associated with the Naval Medical Research Unit Number 4 (Rheumatic Fever) in Dublin, Ga. Dr. Clarence H. Kinnaman, former director, Topeka, will continue in a consultant capacity as epidemiologist and will be directly in charge of special programs. Dr. Andre Baude, a member of the staff of the State Sanatorium for Tuberculosis at Norton since 1942, is acting director of the Division of Tuberculosis Control. He is a graduate of the University of Paris, Faculty of Medicine, 1927.

## LOUISIANA

**Graduate Medical Assembly.**—The annual meeting of the New Orleans Graduate Medical Assembly will be held March 7-10 at the Municipal Auditorium. Fourteen divisions of medicine have selected the following guest speakers: Drs. C. Guy Lane, Boston; Albert F. R. Andresen, Brooklyn; George H. Gardner, Chicago; Russell L. Cecil, New York; Edward H. Rynearson, Rochester, Minn.; Charles A. Poindexter, New York; O. Spurgeon English, Philadelphia; Benjamin P. Watson, New York; Everett L. Goar, Houston, Texas; James S. Speed, Memphis, Tenn.; C. Stewart Nash, Rochester, N. Y.; Colonel James E. Ash, Washington, D. C.; A. Ashley Weech, Cincinnati; Frederic E. Templeton, Seattle; Reginald Smithwick, Boston; John de J. Pemberton, Rochester, Minn.; J. A. Campbell Colston, Baltimore, and Frank Lahey, Boston. Following the meeting a postclinical tour to Mexico is planned for March 12-27. Headquarters in México, D. F., will be the Hotel del Prado. A medical program is being arranged by doctors in México for March 14-15. For information write to the New Orleans Graduate Medical Assembly, Room 105, 1430 Tulane Avenue, New Orleans 12.

## MASSACHUSETTS

**Personal.**—At a November convocation assemblage at Davidson College an alumni citation of merit was presented to Brigadier General James S. Simmons, U.S.A. retired, dean of Harvard School of Public Health, for outstanding contributions in the fields of preventive medicine and public health. General Simmons received his Bachelor of Science degree at Davidson in 1911 and was awarded the honorary degree of Doctor of Science in 1937.

**Massachusetts Physicians Committee.**—On November 22 a group of physicians formed a Massachusetts Physicians Committee to promote free enterprise and preserve the system of private practice in medicine in this country. The committee invites the help of physicians of the commonwealth in studying problems of general concern, in enlightening the public and in lending all aid possible to the government and the people in establishing the nation's health on a secure basis.

## MICHIGAN

**Society News.**—The Michigan Pathological Society on December 11 installed Dr. Donald H. Kaump, Detroit, as president and elected Drs. Richard E. Olsen, Pontiac, president-elect, and Walter A. Stryker, Wyndotte, secretary-treasurer.

**Adult Psychiatric Clinic.**—The Adult Psychiatric Clinic at Harper Hospital, Detroit, has been initiated as a therapeutic unit by the combined efforts of the State Department of Mental Health and community leaders. The clinic will not attempt therapy of certain of the more serious psychiatric conditions. From agencies making a referral it is desirable that the clinic have a social and medical history, and a report of physical examination where this is feasible. A conference with the referring agency is also preferred. A minimum age level for patients is eighteen years. The clinic will operate on a fee basis.

**Beaumont Memorial on Mackinac Island.**—The Council of the Michigan State Medical Society at a recent meeting approved a plan to raise funds by popular subscription to establish the Beaumont Medical Shrine on Mackinac Island. About $30,000 is needed to restore the building where Dr. William Beaumont as a young Army post surgeon began direct observations of the process of digestion through a wound into a patient's stomach, which led to the publication of his book, "Experiments and Observations on the Gastric Juice and the Physiology of Digestion." The restoration of this landmark has been recommended by the Michigan State Medical Society Beaumont Memorial Committee and the Michigan Mackinac Island Commission.

## NEW JERSEY

**Recommendations of Commission on Alcoholism.**—The New Jersey Commission on Alcoholism and Promotion of Temperance, having completed a three year study, has issued a report to the state legislature making recommendations for legislation authorizing the establishment of facilities under the department of health for the treatment of alcoholic addicts and for the prevention of alcoholism. The four point program recommended is designed to guide the New Jersey State Department of Health in developing a positive approach to the problem: (1) provision and operation of facilities necessary for the treatment and rehabilitation of alcoholic addicts; (2) provision of informational and educational services to the public relative to the prevention and treatment of alcoholism; (3) initiation and sponsorship of research programs to increase scientific knowledge in the field, and (4) coordination of its efforts with other agencies whose services can contribute to the objectives of the department.

## NEW YORK

**Postgraduate Lecture.**—The Medical Society of the State of New York, with the cooperation of the New York State Department of Health, has arranged a postgraduate lecture for the Onondaga County Medical Society at the University Club, Syracuse, February 1, 8:30 p. m., when Dr. Marcy L. Sussman, New York, will speak on "Recent Radiologic Contributions to the Study of Heart Disease."

**Rochester Committee on Arthritis and Rheumatism.**—A Rochester Committee to represent the Arthritis and Rheumatism Foundation organized a few months ago has been formed. Rochester is one of thirty-eight centers the foundation has designated to represent it locally and to assist in its fund-raising effort. Headquarters has been established at 1441 East Avenue, in care of the Medical Society of the County of Monroe. The Governing Committee is headed by Dr. Jacob D. Goldstein, Rochester.

**Cancer Teaching Day.**—A Cancer-Teaching Day will be held at the Hermann M. Biggs Memorial Hospital, Ithaca, January 19 beginning at 4 p. m., under the auspices of the Medical Society of the County of Tompkins and the Tompkins County Department of Health, the Medical Society of the State of New York and the New York State Department of Health. The program is as follows: Dr. Norman Treves, New York, "Cancer of the Breast"; Dr. John S. LaDue, New York, "Operative Risk and Pre- and Post-Operative Care of Patients with Cancer"; Dr. Clyde L. Randall, Buffalo, "Significance and Management of Abnormal Vaginal Bleeding," and Dr. Albert F. R. Andresen, New York, "Gastrointestinal Cancer." A buffet supper will follow at 6:30 p. m., for which the required advance reservations may be obtained from N. Stanley Lincoln, M.D., Hermann M. Biggs Memorial Hospital, Ithaca, N. Y.

### New York City

**John Osborn Polak Memorial.**—Cornerstone-laying ceremonies were held December 17 for the John Osborn Polak Memorial, an addition to the Long Island College Hospital. It contains a suite of six operating rooms and other facilities. Dr. Polak was professor of obstetrics and gynecology at the Long Island College of Medicine and at the hospital. He died June 29, 1931.

**Annual President's Dinner.**—The Medical Society of the County of Kings and the Academy of Medicine of Brooklyn will hold its fifth annual president's dinner January 26 at Hotel St. George, Brooklyn, Harry D. Gideonse, LL.D., president of Brooklyn College, will speak on "Free Science and the Future of an Open Society." Presentation of the President's Medal and Scroll will be made to Dr. A. W. Martin Marino.

**Director of Neurological Surgery Appointed.**—Dr. J. Lawrence Pool has been named director of Neurological Surgery Service at the Neurological Institute of the Presbyterian Hospital and professor of neurological surgery and executive officer of the department, effective January 1. He has been associated with the Columbia-Presbyterian Medical Center since 1934. Dr. Pool was graduated from the Columbia University College of Physicians and Surgeons in 1932. He was chief of neurosurgery for four months in World War II at the Army's Thomas M. England Hospital in Atlantic City.

**Award the Benson Fellowship.**—A fellowship for medical research commemorating the late Philip A. Benson has been awarded to Dr. Irving Rappaport, an instructor at the Long Island College of Medicine. Dr. Rappaport has had training and experience as a malariologist and parasitologist in tropical medicine in Australia, New Guinea, the Philippines and the U. S. Army Medical School. The Philip A.

Benson Memorial Fund was formed by contributions from Mr. Benson's friends and by savings banks of New York State, the association of which Mr. Benson was president. Mr. Benson was a trustee of the college for twelve years. It is anticipated that the fund will eventually be increased to provide for a full time professorship at the college.

**Coordinate Physical Medicine Program.**—Columbia University on January 1 embarked on a new program of coordination and integration of the physical medicine program which has been developed under impetus from a grant of $400,000 from the Baruch Committee on Physical Medicine. Dr. Robert C. Darling, associate professor of medicine, director of research in physical medicine and chairman of the Physical Fitness Sub-Committee of the Baruch Committee, will be coordinator of physical medicine and rehabilitation. The new program will deal with the instructional and research activities in physical medicine at Columbia-Presbyterian Medical Center; the Institute for the Crippled and Disabled, which is affiliated with Columbia; the instructional program in physical and occupational therapy at the Medical Center and Teachers College, and training projects for both technical and medical personnel at the Medical Center and eight other hospitals in New York City. Dr. Darling is a graduate of the Harvard Medical School, Boston, 1934.

## OHIO

**Seminar for General Practitioners.**—The Society of General Physicians, Cincinnati, is offering a seminar on "Pathologic Physiology of Disease," for general practitioners, in collaboration with the University of Cincinnati College of Medicine. The meetings will be held in Room 110 of the college on Tuesdays and Thursdays beginning January 18 and extending through February 10. Sixteen lecturers under the direction of Dr. Marion A. Blankenhorn, Cincinnati, will participate in the seminar.

**Attack on Unethical Practices.**—The Cleveland Academy of Medicine and the Cleveland Better Business Bureau are making a joint attack on unethical and fraudulent practices on the part of physicians, other classes of practitioners and firms which supply them with materials and appliances. The joint effort is the result of a study made by the Academy of Medicine and subsequent conferences with officials of the Better Business Bureau. Action was taken by the academy to the end of fostering public confidence in the medical profession. Six conditions are to be checked:

(1) fraudulent medical advertising; (2) rebating to physicians from the sale of eyeglasses; (3) rebating from the sale of diagnostic and therapeutic mechanical apparatus; (4) the control of unlicensed and limited licensed practitioners who overstep the bounds of legal limitations; (5) the practice by certain druggists of giving physicians rebates from remedies sold to patients, and (6) the activities of some physicians who falsely promise impossible cures and fraudulently treat incurable diseases.

It was felt that the first three items listed should receive the initial concentrated effort. The academy has granted the bureau $2,500 with which to start the campaign.

## OREGON

**Memorial to Dr. Mount.**—A gift of $5,000 to the library of the University of Oregon Medical School, Portland, has been made in memory of Dr. Frank R. Mount, former assistant clinical professor of medicine at the university, by Mrs. John E. Weeks. This makes a total of $6,825 given to the library in his memory by various persons. Dr. Mount died Oct. 11, 1947.

**Research Laboratories Completed.**—Completion of research laboratories at the University of Oregon Medical School, Portland, will make possible immediate acceleration of the virus research program, according to Dr. Arthur Frisch, director. The animal quarters, costing $125,000 and paid for with state funds, consist of thirty rooms. Financing of the virus section improvements was made possible through the gift of the National Foundation for Infantile Paralysis Chapters in Josephine and Multnomah counties.

## SOUTH DAKOTA

**Meeting of Council and District Officers.**—The first annual meeting of the Council and District Officers of the South Dakota State Medical Association was held at the Marvin Hughitt Hotel, Huron, January 9. Subjects discussed included "Duties of the District Officers" and "Relation of the District to the State Association," "Conduct of the District Society," "Public Relations" and "Prepayment of Medical Care."

## WEST VIRGINIA

**Organize General Practice Group.**—A West Virginia Chapter of the American Academy of General Practice has been organized at Charleston. The seventeen charter members present elected the following officers for 1949: President, Dr. Tyler R. Boling, Grantsville; vice president, Dr. Ralph Frazier, Fayetteville; secretary, Dr. Carl B. Hall, Charleston.

**Personals.**—Dr. Joseph U. Rohr of Charleston has been named by Governor Clarence W. Meadows as superintendent of the Andrew S. Rowan Memorial Home at Sweet Springs, effective November 1. He succeeds Dr. Henry H. Hancock, superintendent since 1946, who resigned to resume private practice. Dr. Luke W. Frame of Morgantown has been named director of the division of communicable disease of the state health department, succeeding Dr. Robert E. Gibson, Charleston, resigned.

**Society News.**—At a recent meeting of the Central Medical Society in Buckhannon, Dr. William W. Huffman of Gassaway, was elected president and Dr. Theresa O. Snaith of Weston, secretary-treasurer. The meeting was attended by over fifty doctors, members of the auxiliary and guests.——The West Virginia Academy of Ophthalmology and Otolaryngology at the annual fall meeting elected Dr. Sobisca S. Hall, of Clarksburg, president; Dr. Melvin W. McGehee, Huntington, secretary, and Dr. Frederick C. Reel, Charleston, treasurer.

## PUERTO RICO

**Puerto Rico Medical Association.**—At the annual meeting of the Puerto Rico Medical Association Dec. 7, 1948 in San Juan Dr. Manuel A. Astor was reelected chairman; Dr. Jenaro Barreras, vice-chairman; Dr. J. Bassora Defillo, secretary; Dr. Jaime F. Pou-Valldejuli, treasurer, and Dr. Carlos Munoz McCormick, delegate to the American Medical Association. Dr. Manuel G. Rodriguez was reelected chairman of the chamber of delegates.

## GENERAL

**Cerebral Palsy Meeting.**—The American Academy for Cerebral Palsy will hold its Second Annual Meeting at the Palmer House in Chicago January 27-28. A scientific meeting will be held on Friday afternoon and Saturday morning.

**National Society for Medical Research.**—The annual board of directors meeting of the National Society for Medical Research will be held at 2 p. m. February 6 in the Palmer House, Chicago, in connection with the annual Conference on Medical Education and Licensure.

**Urologists Meeting.**—The Western Section of the American Urological Association will meet January 17-19 at the Hotel del Coronado, Coronado, Calif. The Robert V. Day Lecture on "Present Status of Prostatic Carcinoma" will be delivered by Dr. Charles B. Huggins, Chicago. Homer W. Smith, New York, has been invited to speak on "Modern Theory of Urine Formation." The Joseph F. McCarthy Award paper will be given Wednesday morning by Dr. John W. Dorsey, Long Beach, Calif., on "Solitary Hydrocalyx."

**Teachers of Clinical Radiology to Meet.**—The sixteenth annual Conference of Teachers of Clinical Radiology will be held at the Drake Hotel, Chicago, February 5 under the sponsorship of the American College of Radiology. There will be round table discussions at which teachers of clinical radiology can discuss problems of mutual interest. The first Conference on Radiology in Rural Health will be held from 2:30 to 6 p.m. February 5 after the teachers' conference. The meeting will take up possible methods of bringing specialized radiologic services to rural areas.

**Increased Number of Student Nurses.**—More than 43,000 students entered schools of nursing in the United States during 1948, according to the American Hospital Association. The figure represents an increase of nearly 5,000 students over the 1947 total, 12,000 more than in 1946 and the largest number of student nurses ever recruited during a peacetime year. Enrolment in schools in 38 states increased from 1 to 73 per cent; in 8 states decreased admission was reported. The increase is believed to be the result of two national recruitment drives during the last two years sponsored by the American Hospital Association, American Medical Association, American College of Surgeons, American Red Cross, U. S. Public Health Service, the National Committee on Careers in Nursing and the Advertising Council.

**Six Scientists Receive Awards.**—Six scientists were presented Amory Awards totaling $21,000 for research in disorders of the human reproductive organs at a meeting of the American Academy of Arts and Sciences in Boston December 8. The awards were given to Dr. W. J. Kolff of Holland for developing the artificial kidney; Dr. George N. Papanicolaou, New York, for the early diagnosis of cancer by the detection of malignant cells in secretions; Professor Guy F. Marrian, Edinburgh, Scotland, for research on the chemistry of sex hormones; Selman A. Waksman, Ph.D., New Brunswick, N. J., for his discovery of streptomycin, and Dr. Alexander B. Gutman, New York, and Dr. Charles B. Huggins, Chicago, for their work in the diagnosis and treatment of cancer of the prostate. The prizes were established by Francis Amory's bequest to the American Academy of Arts and Sciences in 1912 for stimulating invention and research to provide for the treatment and cure of "the diseases of the human sexual generative organs," especially for the relief of "retention of urine, cystitis, prostatitis and those distressing disorders so common to old men." Prizes are awarded every seven years by the academy in accordance with the bequest.

**Funds Allocated for Research on Hypertension.**—The Board of Trustees of the American Foundation for High Blood Pressure have announced the allocation of funds to the following investigators for research in hypertension and arteriosclerosis:

| | |
|---|---|
| Thomas C. Barnes, Sc.D., Hahnemann Medical College Philadelphia | $ 1,000 |
| Stanley E. [illegible] New York | 5,000 |
| Norman E [illegible] San Francisco | 3,500 |
| Meyer Fri [illegible] n Francisco | 5,300 |
| Sydney M [illegible] Faculty of Medicine, Montreal, Canada | 3,000 |
| David M. Greenberg, Ph.D., University of California, Berkeley, Calif. | 8,640 |
| Keith S. Grimson, Duke University Hospital, Durham, N. C. | 5,000 |
| Albert I. Lansing, Ph.D., Washington University School of Medicine, St. Louis | 7,182 |
| Arnold Lazarow and John W. Patterson, Ph.D., Western Reserve University, Cleveland | 5,000 |
| Jessie Marmorston, University of Southern California, Los Angeles | 5,000 |
| Campbell Moses, University of Pittsburgh School of Medicine, Pittsburgh | 1,900 |
| Frederick J. Moore and Norman C. Flau, University of Southern California, Los Angeles | 5,000 |
| Jean Oliver, Long Island College of Medicine, New York | 2,800 |
| Ernest W. Page, University of California, San Francisco | 3,000 |
| Lelland J. Rather, Stanford University School of Medicine, San Francisco | 5,000 |
| George E. Wakerlin, University of Illinois, Chicago | 5,000 |
| A. Earl Walker, Johns Hopkins University, Baltimore | 4,000 |
| Harold Wiggers, Ph.D., Albany Medical College, Albany, N. Y. | 2,700 |
| Eugene B. Ferris, University of Cincinnati, Cincinnati | Amount to be Determined. |

## CANADA

**Society News.**—The Montreal Medico-Chirurgical Society, meeting February 4, will hear Drs. John F. McIntosh, Frederick G. Kalz, Max Ratner, and Emerson C. Smith, all of Montreal, discuss "The Relation of Urinary Urease to Crystalluria and Recurrent Stone Formation, with Report of Cases." Dr. Priscilla White, Boston, will speak on "Diabetes and Pregnancy." At the February 18 meeting a symposium on "Cervicobrachial Pain" will be held with speakers Drs. Francis L. McNaughton, Simeon J. Martin, James G. Shannon and Herbert F. Moseley, all of Montreal.

## LATIN AMERICA

**Inter-American Congress of Radiology.**—The Third Inter-American Congress of Radiology will be held in Santiago de Chile November 11-17 under the sponsorship of the Chilean government. Official subjects of the congress will be radiological exploration of the cardiovascular system with opaque material; diagnosis and simple radiologic exploration of the skull, and radiation treatment of cancer of the tongue and of the cervix. Because of the great demand for South American transportation during the winter months, those in the United States who wish to attend should write Dr. James T. Case, 55 East Washington Street, Chicago 2, coordinator between the executive committee of the congress and radiologists of the United States.

**Inter-American Congress on Brucellosis.**—The Second Inter-American Congress on Brucellosis, under the auspices of the Pan-American Sanitary Bureau, was held at Mendoza and Buenos Aires, Argentina, November 17-26. The United States was represented officially by Dr. James H. Steele, Chief, Veterinary Public Health Division, U. S. Public Health Service, Atlanta, Ga., who was named chairman of the delegation, and Dr. C. K. Mingle of the Bureau of Animal Industry. Other American participants invited by the Congress were Dr. Harold Harris, New York; Horace M. Powell, Sc. D., Indianapolis; Drs. Leo Lowbeer, Tulsa, Okla., and Joseph F. Griggs, Claremont, Calif.

The meeting at Mendoza was devoted to research and epidemiology papers by representatives of Argentina, Chile, Colombia, Peru, Venezuela, Mexico and the United States. Dr. Steele presented a paper on "The Epidemiology of Brucellosis in the United States." Dr. Mingle responded at the opening session for the visiting delegates to the speech of welcome by the Minister of Health, Dr. Luis Carrillo. Dr. Carlos Crivellari, director of public health, Argentine Republic, was chosen president of the congress. Dr. Miguel Bustamente, secretary, Pan-American Sanitary Bureau, assisted Dr. M. Ruiz Castaneda, secretary.

The Mendoza area, in the foothills of the Andes, has an extensive goat industry, and most of the brucellosis reported is of the melitensis type. The delegates visited the surrounding country to see the goat industry and observe the conditions under which the shepherds became infected. The close proximity to human habitation of the corrals and the necessary handling of the animals in milking cause human exposure to animal infection. In the urban areas many human cases are traced to unpasteurized cheese of goat origin. There are few cattle or swine in this region, and no Brucella abortus or Brucella suis cases among human beings are reported.

The delegates had an opportunity to see the pampas after the Mendoza session closed when they were en route to Buenos Aires. The Province of Buenos Aires, which surrounds the city, has a dense animal population of cattle, swine, horses and sheep, although the major portion of the sheep industry is further south in Patagonia.

The meetings were resumed in Buenos Aires on November 22 and closed on November 26. The Buenos Aires meeting was mainly concerned with the discussion of the diagnosis and therapy of human brucellosis. Dr. Harris spoke on "Diagnosis and Treatment of Brucellosis," Dr. Griggs on "Bacterial Allergy," Dr. Powell on "Therapy" and Dr. Lowbeer on "The Pathology of Swine Brucellosis." Dr. M. Ruiz Castaneda of Mexico presented an excellent paper on "The Treatment of Brucellosis with Aureomycin." The congress created two permanent committees to study the standardization of human serologic diagnostic methods and animal disease eradication. The success of both groups will depend on having a standard antigen with which to compare other antigens. The congress concluded that the antigen of the Bureau of Animal Industry, U. S. Department of Agriculture, would be the best to use, as it is available in large quantities and could be readily distributed. Similar studies will also be carried on for animal serology. The congress further agreed that brucellosis cannot be controlled in man until it is controlled in animals.

The congress voted to accept the invitation of the United States to hold the third Inter-American Congress on Brucellosis in Washington, D. C., in October 1950. Dr. W. William Spink, Minneapolis, has been named chairman of the third congress and Dr. M. Ruiz Castaneda is to continue as secretary.

# Marriages

J. Woodhull Overton, New York, to Mrs. Joan Blair Havemeyer of Las Vegas, Nev., in Boulder City, Nev., October 25.

Robert J. Duncan, La Salle, Ill., to Miss Jane Ruth Weymouth of Avalon, Wis., in Delavan, Wis., Nov. 6, 1948.

Robert L. Alexander, Cleveland, to Miss Sansa Rita O'Connor in Shaker Heights, Ohio, October 23.

George Ralph Hatcher, Valhalla, N. Y., to Miss Mary Louise Heinze of Fostoria, Ohio, October 24.

Jack Hanson Powell Jr., to Miss Margaret Valentine Peniston, both of Newman, Ga., in October.

James Blair Martin to Miss Jane Pierson, both of Charleston, S. C., in Macon, November 6.

Adelbert Ames III, Hanover, N. H., to Miss Judith Quentin Derby in Oyster Bay, L. I., October 16.

Condon Thomas Hagan, Wichita, Kan., to Miss Mary Ann Claffy of Columbia, S. C., November 8.

Patrick James Finucane to Miss Jeane Marie Kinsman, both of Eau Claire, Wis., November 6.

Joseph F. Zigarelli, Paterson, N. J., to Miss Eileen Joan Reilly of Englewood, November 6.

John R. Markette to Miss Dollie Mae Swalm, both of Brookhaven, Miss., October 16.

Theodore B. Van Itallie, New York, to Miss Barbara Cox of Bangor, Me., September 25.

Henry C. Scholer to Miss Dorothy Mae Eyler, both of Monmouth, Ill., October 16.

Melvin Raymond Salk to Miss Zelda Weiner, both of Chicago, November 28.

# Deaths

**Charles Malden Oman** ⊕ Medical Director, Rear Admiral, U. S. Navy, retired, Beacon, N. Y.; born in Columbia County, Pa., Oct. 23, 1878; University of Pennsylvania Department of Medicine, Philadelphia, 1901; commissioned assistant surgeon in the U. S. Navy on Feb. 2, 1902; served in the Philippine, Cuban and Mexican campaigns; during World War I commanded the hospital ship Comfort and later the Navy Base Hospital at Brest, France; commanded the Naval Dispensary, Washington, D. C., from 1928 until 1931; served as medical officer of the third Naval District; in 1941 became the first medical officer in command of the Navy Medical Center, Bethesda, Md.; in 1942 was transferred to the retired list but continued to serve as commandant of the Naval Convalescent Hospital at Harriman, N. Y., until Nov. 6, 1945; member of the board of governors of the American College of Surgeons, member of the New York Society of Tropical Medicine, and for many years a member of the National Board of Medical Examiners; awarded the Navy Cross for distinguished service as officer in command of the hospital at Brest, and the Italian Red Cross medal for work in the Massina earthquake in 1909; author of "Minor Surgery" and "Doctors Aweigh"; died November 1, aged 70, of coronary occlusion.

**George Corwin Beach Jr.,** ⊕ Major General, M. C., U. S. Army, and Assistant Surgeon General of the Army in command of the Army Medical Center, Washington, D. C.; born in Topeka, Kan., Oct. 28, 1888; University Medical College of Kansas City, Mo., 1911; in 1917 commissioned a first lieutenant in the regular army, and in the same year graduated from the Army Medical School; assigned to the Panama Canal Zone as post surgeon; later chief of medical services at the Sternberg General Hospital in Manila; formerly served at the Letterman General Hospital in San Francisco and the Mayo Clinic in Rochester, Minn.; at one time commanding officer of the Station Hospital, Fort Sam Houston, Texas; in 1930 awarded the Distinguished Service Medal for exceptionally meritorious service; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the Association of Military Surgeons of the United States; died in the Walter Reed General Hospital, November 18, aged 60.

**John Beekman Potts,** Omaha; born in Morrisonville, Ill., July 14, 1876; University of Nebraska College of Medicine, Omaha, 1907; joined the faculty of his alma mater in 1912 as clinical assistant in otolaryngology and rhinology; became instructor in 1914, assistant professor in 1925, associate professor in 1931 and since 1937 professor of otorhinolaryngology emeritus; specialist certified by the American Board of Otolaryngology; member of the American Medical Association, Association for the Study of Internal Secretions, American Academy of Ophthalmology and Otolaryngology, American Laryngological Association, American Laryngological, Rhinological and Otological Society and the American Otological Society; served overseas during World War I; affiliated with the Bishop Clarkson Memorial Hospital, Nebraska Methodist Episcopal Hospital and University of Nebraska Hospital; consultant for the Veterans Bureau; died October 29, aged 72, of acute pulmonary edema.

**Warren Douglas Horner** ⊕ San Francisco; born in Klamath Falls, Ore., in 1890; University of California Medical School, San Francisco, 1916; associate clinical professor of ophthalmology at his alma mater; vice chairman of the Section on Ophthalmology of the American Medical Association in 1947; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology, American Ophthalmological Society, Association for Research in Ophthalmology, Western Ophthalmological Society and Pacific Coast Oto-Ophthalmological Society; served during World Wars I and II; president of the board of directors of the Lux Technical Institute; affiliated with St. Mary's Hospital, Children's Hospital and the U. S. Marine Hospital; died October 22, aged 58, of carcinoma of the prostate.

**John Thomson Crebbin,** New Orleans; born in Lawrence, Kan., Dec. 8, 1872; the Hahnemann Medical College and Hospital, Chicago, 1900; member of the American Medical Association; specialist certified by the American Board of Otolaryngology; at one time on the faculty of the New Orleans Polyclinic; for many years president of the state board of nursing examiners, which he helped to organize; formerly practiced in Shreveport, La., where he was on the staffs of the Pines Sanatorium, North Louisiana Sanitarium and Shreveport City Hospital; served as superintendent of the Eye, Ear, Nose and Throat Hospital; died in Mercy Hospital October 20, aged 75, of cerebral arteriosclerosis, hypertension and lymphoma.

**George F. Adair,** Lynbrook, N. Y.; Georgetown University School of Medicine, Washington, D. C., 1900; died recently, of arteriosclerosis.

**Henry Rihl Alburger** ⊕ Indianapolis; University of Pennsylvania Department of Medicine, Philadelphia, 1902; member of the American Society of Clinical Pathologists; at one time on the faculty of Indiana University and of the University of Pennsylvania; served on the staffs of the Methodist and St. Vincent's hospitals; formerly on the staff of the City Hospital; affiliated with St. Francis Hospital, where he died October 7, aged 74.

**Romus Arnold,** Carthage, Mo.; the Hahnemann Medical College and Hospital, Chicago, 1888; served during World War I; died October 11, aged 83, of arteriosclerosis.

**Curtis Leroy Baker** ⊕ Kirkpatrick, Ohio; Medical College of Indiana, Indianapolis, 1894; died October 15, aged 78.

**Canada Asbery Beeler,** Cherryvale, Kan.; Fort Worth School of Medicine, Medical Department of Fort Worth University, 1903; member of the American Medical Association; died October 1, aged 75, of coronary arteriosclerosis.

**Charles Gideon Bell,** Canton, Miss.; Vanderbilt University School of Medicine, Nashville, Tenn., 1903; member of the American Medical Association; served during World War I; for many years chairman of the board of directors of the Canton Exchange Bank; local surgeon for the Illinois Central Railroad; died in St. Dominic's Hospital, Jackson, October 27, aged 65, of heart disease.

**Joseph Louis Belliotti** ⊕ Providence, R. I.; University of Buffalo School of Medicine, 1916; fellow of the American College of Surgeons; served during World Wars I and II; member of the board of trustees of state colleges; affiliated with the Notre Dame Hospital, Central Falls, Westerly (R. I.) Hospital, State Infirmary, Howard, Roger Williams Hospital, Charles V. Chapin Hospital and St. Joseph's Hospital, where he died October 27, aged 54, of coronary occlusion.

**James Harrington Biram** ⊕ Hartford, Conn.; Cornell University Medical College, New York, 1910; fellow of the American College of Surgeons; a medical officer serving in France during World War I; served on the staff of Hartford Hospital and as medical director of the Colt Manufacturing Company; died in Granby, October 30, aged 67, of heart disease.

**Irving DeLoss Blanchard,** Boston; Yale University School of Medicine, New Haven, 1897; died in West Newton, September 30, aged 74, of arteriosclerotic heart disease.

**Henry Montague Bonner,** Morehead City, N. C.; Medical College of Virginia, Richmond, 1897; on the staff of the Morehead City Hospital; died in Laurinburg October 19, aged 73, of myocarditis.

**Charles D. Boyd,** Kaukauna, Wis.; Rush Medical College, Chicago, 1891; member of the American Medical Association; past president of the Outagamie County Medical Society; served as trustee of the Wisconsin Anti-Tuberculosis Association; formerly health officer and mayor; a founder and, until 1946, superintendent and medical director of the Riverview Sanatorium, a position he held for thirty-two years; on the staff of St. Elizabeth's Hospital in Appleton; died October 1, aged 79, of nephritis.

**George W. Brickbauer,** New Holstein, Wis.; Homeopathic Medical College of Missouri, St. Louis, 1895; formerly president of the State Bank in Plymouth and village president of Elkhart Lake; at one time director and president of the chamber of commerce of Sheboygan; died October 24, aged 81, of cerebral hemorrhage.

**Terrell Bridges,** Montevallo, Ala.; Birmingham Medical College, 1915; member of the American Medical Association; died October 27, aged 61, of coronary thrombosis.

**John T. Burnite,** Harrisburg, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1904; member of the American Medical Association; affiliated with Polyclinic Hospital, where he died October 20, aged 68, of coronary disease.

**Mary Allen Callaway-Joplin,** Boise, Idaho; Fort Worth School of Medicine, Medical Department of Fort Worth University, 1902; member of the American Medical Association; served for two terms as a member of the state house of representatives; died in a local hospital October 15, aged 69, of carcinoma of the ovary.

**Henry Jones Carswell,** Waycross, Ga.; University of Georgia Medical Department, Augusta, 1908; member of the American Medical Association; served overseas during World War I; died October 3, aged 63.

**Horace Fordyce Coburn,** Wilton, N. H.; Harvard Medical School, Boston, 1903; died October 13, aged 76.

**Walter Alton Coole** ⊕ Houston, Texas; Baylor University College of Medicine, Dallas, 1930; served as secretary of the Harris County Medical Society; formerly an officer in the U. S. Navy; served during World War I; died suddenly, October 16, aged 48.

**Henry Knox Craig,** Washington, D. C.; Columbian University Medical Department, Washington, 1895; formerly librarian and curator of the museum at George Washington University School of Medicine; died in the Gallinger Hospital October 22, aged 76.

**Leman Dow Cruice** ⊕ Major, U. S. Army, retired, Alhambra, Calif.; Jefferson Medical College of Philadelphia, 1913; entered the medical corps of the U. S. Army in 1917; retired May 22, 1920 for disability in line of duty; served during World War I; died in Pasadena, recently, aged 60, of coronary occlusion.

**James Floyd Darby,** St. Ignace, Mich.; Michigan College of Medicine and Surgery, Detroit, 1895; past president of the Chippewa-Mackinac Counties Medical Society; died September 25, aged 77.

**Benjamin Shadrach Davis,** Plymouth, Pa.; Jefferson Medical College of Philadelphia, 1917; served as secretary of the board of health of Plymouth, as police and fire surgeon and for two terms as coroner's physician; affiliated with the Wyoming Valley Homeopathic Hospital, Wilkes-Barre, where he died October 10, aged 55, of cerebral hemorrhage.

**Leon Curtis Davis** ⊕ Greenville, Miss.; Tulane University of Louisiana School of Medicine, New Orleans, 1910; affiliated with King's Daughters' Hospital; died in Sanatorium October 27, aged 62, of pulmonary tuberculosis.

**Nettie Austin Murphy Dorris** ⊕ Paris, Ill.; University of Louisville (Ky.) Medical Department, 1905; formerly health superintendent of district number 13; served as superintendent of the Illinois mobile health unit with headquarters in Springfield; died in the Cottage Hospital in Galesburg, October 10, aged 71, of nephritis.

**Robert Edward Dyer,** Chicago; University of Illinois College of Medicine, Chicago, 1919; member of the American Medical Association; formerly on the faculty of the Loyola University School of Medicine; on the staffs of Mercy, St. Joseph and Ravenswood hospitals; died October 29, aged 54, of coronary thrombosis and hypertension.

**Frank Birch Easton,** Craftsbury Common, Vt.; Harvard Medical School, Boston, 1904; member of the American Medical Association; affiliated with the Orleans County Memorial Hospital, Newport, where he died recently, aged 70, of uremia and chronic nephritis.

**Wiley Sims Embrey,** Texarkana, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1896; served during World War I; died October 2, aged 78, of heart disease.

**Archibald Parker Evans,** Kings Park, N. Y.; Columbia University College of Physicians and Surgeons, New York, 1905; served during World War I; for many years affiliated with Kings Park State Hospital; died October 21, aged 68, of chronic myocarditis.

**George H. Eversole,** Caledonia, Mo.; Missouri Medical College, St. Louis, 1886; died October 4, aged 85.

**Frank B. Farrington,** Kirksville, Mo.; St. Louis University School of Medicine, 1905; died in Dearborn, Mich.; October 24, aged 74.

**J. B. Freeland,** Dyersburg, Tenn. (licensed in Tennessee in 1910); died recently.

**Daniel Sylvester Gardner,** Massillon, Ohio; Western Reserve University Medical Department, Cleveland, 1887; chairman of the Selective Service Board during World War I; on the staff of Massillon City Hospital, where he died October 26, aged 81, of carcinoma of the prostate.

**Earnest Reuel Goodloe** ⊕ Paducah, Ky.; University of Nashville (Tenn.) Medical Department, 1903; past president of the Southwestern Kentucky Medical Association; past president and secretary of the McCracken County Medical Society; formerly postmaster of Little Cypress; on the staff of the Illinois Central and Riverside hospitals; died October 23, aged 69, of carcinoma of the pancreas.

**John Pugh Hall** ⊕ Pittsburgh; College of Physicians and Surgeons, Baltimore, 1892; served during World War I; died October 21, aged 81.

**Julius Hammer,** New York; Columbia University College of Physicians and Surgeons, New York, 1902; member of the American Medical Association; died October 17, aged 74.

**Frank Cleveland Hart,** Seattle; University of Oregon Medical School, Portland, 1915; served during World War I; died in Walla Walla September 29, aged 62, of heart block.

**Edward Leo Herlihy** ⊕ Bangor, Me.; Medical School of Maine, Portland, 1920; fellow of the American College of Surgeons; affiliated with the Eastern Maine General Hospital; died October 31, aged 53.

**Gilbert Austin Hoppes,** Anderson, Ind.; Indiana University School of Medicine, Indianapolis, 1912; died in the Ball Memorial Hospital, Muncie, October 22, aged 58, of hypertensive cardiovascular renal disease.

**William Forrest Howard** ⊕ Pocatello, Idaho; University Medical College of Kansas City, Mo., 1899; an Associate Fellow of the American Medical Association; fellow of the American College of Surgeons; served during World War I; formerly secretary of the Pocatello Medical Society; past president of the Idaho State Medical Association; served as a member of the state board of medical examiners and as city physician; affiliated with the Pocatello General and St. Anthony's hospitals; died October 19, aged 80.

**William Bell White Howe,** Hendersonville, N. C.; Medical College of the State of South Carolina, Charleston, 1906; member of the board of health; honorary member of the staff of Patton Memorial Hospital; died October 4, aged 67, of coronary disease.

**Hans Joergensen** ⊕ Greenport, N. Y.; Georgetown University School of Medicine, Washington, D. C., 1922; died in the Eastern Long Island Hospital, September 20, aged 60, of cerebral hemorrhage.

**Llewelyn L. Jones** ⊕ Glendale, Calif.; University of Nashville (Tenn.) Medical Department, 1899; on the staffs of the Physicians and Surgeons Hospital and Glendale Sanitarium and Hospital, where he died October 15, aged 77, of injuries received when struck by an automobile.

**Thomas Samuel Jones,** Waukee, Iowa; Drake University College of Medicine, Des Moines, 1913; served as mayor and president of the school board; died in Iowa Methodist Hospital, Des Moines, October 26, aged 73, of pulmonary embolism.

**George Lygurgus Karras,** Gary, Ind.; Dalhousie University Faculty of Medicine, Winnipeg, Manitoba, Canada, 1926; died September 30, aged 50.

**Edmond G. Klamke** ⊕ Alexandria, La.; Københavns Universitet Laegevidenskabelige Fakultet, Denmark, 1901; member of the American Public Health Association; director of the Rapides Parish health unit; served during World War I; killed in an automobile accident near Morrow October 13, aged 73.

**Joseph Matthew Klein,** North Brunswick, N. J.; University of Vermont College of Medicine, Burlington, 1909; died October 20, aged 70, of coronary thrombosis.

**James Andrew La Gasa** ⊕ Tacoma, Wash.; Jefferson Medical College of Philadelphia, 1908; fellow of the American College of Surgeons; member of the Washington State Medical Association; at one time on the staffs of Tacoma General and St. Joseph's hospitals; died in Tucson, Ariz., October 7, aged 65, of coronary occlusion.

**Otto Laist** ⊕ San Francisco; College of Physicians and Surgeons of San Francisco, 1900; an Affiliate Fellow of the American Medical Association; on the staff of St. Joseph's Hospital; died October 13, aged 77, of congestive heart failure.

**William Carle Landis,** Claypool, Ind.; Bennett Medical College, Chicago, 1907; served during World War I; died in the Elkhart (Ind.) General Hospital October 19, aged 67, of vesicointestinal fistula.

**Claude B. Leggett,** Abilene, Texas; Southwestern University Medical College, Dallas, 1905; member of the American Medical Association; affiliated with St. Ann Hospital and Hendrick Memorial Hospital; died October 25, aged 68, of cerebral hemorrhage.

**William Levy** ⊕ Suffield, Conn.; Yale University School of Medicine, New Haven, 1911; for many years local medical examiner and health officer; on the staff of Springfield Hospital; died September 15, aged 58, of carcinoma.

**Llewellyn Roy Lewis,** Los Angeles; Northwestern University Medical School, Chicago, 1916; member of the American Medical Association; served as a member of the consulting editorial staff of the supplement of the *International Abstract of Surgery (Surgery, Gynecology and Obstetrics)*; died October 24, aged 58.

**Robert Stephen Lilla** ⊕ Captain, U. S. Army, retired, Nucla, Colo.; Jefferson Medical College of Philadelphia, 1925; entered the U. S. Army on July 1, 1926; retired for disability in line of duty Sept. 30, 1933; died November 1, aged 49, of tuberculosis.

**Hugh Harrison Linn,** Bowringpet, Deccan, India; Northwestern University Medical School, Chicago, 1909; for many years a medical missionary; died recently, aged 70.

**Rossitter J. Lloyd** ⊕ Olyphant, Pa.; Baltimore Medical College, 1897; member of the Radiological Society of North America, Inc.; died October 28, aged 70.

**Joseph Allan Locke,** Tacoma, Wash.; McGill University Faculty of Medicine, Montreal, Canada, 1910; served with the Canadian Army during World War I; *died recently, aged 62.*

**Frank Peter McCarthy** ⊕ Erie, Pa.; Jefferson Medical College of Philadelphia, 1901; past president of the Erie County Medical Society; fellow of the American College of Surgeons; served during World War I; for many years surgeon for the Pennsylvania Railroad; affiliated with Hamot Hospital and St. Vincent's Hospital, where he died October 28, *aged 69, of coronary occlusion.*

**James Gibbons McGillicuddy,** Chelsea, Mass.; Albany (N. Y.) Medical College, 1909; served during World War I; for many years associated with the U. S. Public Health Service; died in the U. S. Marine Hospital, Boston, October 13, aged 64, *of arteriosclerosis and Parkinson's disease.*

**Donald Munro McIntosh,** Old Fort, N. C.; Medical College of Virginia, Richmond, 1904; member of the American Medical Association; past president of the McDowell County Medical Society; formerly councilor and president of the Tenth District of the Medical Society of the State of North Carolina; served during World War I; on the staff of Marion (N. C.) General Hospital; died October 29, aged 66, of cerebral hemorrhage.

**John Francis McKie,** Hot Springs, S. D.; Rush Medical College, Chicago, 1910; served during World War II; died in the Veterans Administration Hospital September 2, aged 65, of coronary occlusion and hypertension.

**Ray Randle Osborne** ⊕ Rockford, Ill.; Chicago College of Medicine and Surgery, 1912; affiliated with St. Anthony Hospital; *died October 24, aged 66, of cerebral embolism.*

**Hewell Coleman Samuel,** Sanatorium, Texas; Tulane University of Louisiana School of Medicine, New Orleans, 1941; *member of the American Trudeau Society;* assistant superintendent of the State Tuberculosis Sanatorium; died October 21, aged 35.

**Albert Spottke,** New York; Universität Leipzig Medizinische Fakultät, Saxony, Germany, 1887; died in White Plains, October 29, aged 87, of myocardial degeneration.

**Louis Joseph Thibault,** Waterbury, Conn.; Yale University School of Medicine, New Haven, 1900; served as school physician of Waterbury and health officer of Wolcott; on the staff of St. Mary's Hospital, where he died September 12, aged 70, of carcinoma of the prostate.

**Carl Samuel Jonathan Tillmanns** ⊕ Los Angeles; Washington University School of Medicine, St. Louis, 1907; an Associate Fellow of the American Medical Association; died in Inglewood, September 14, aged 65, of aortic stenosis.

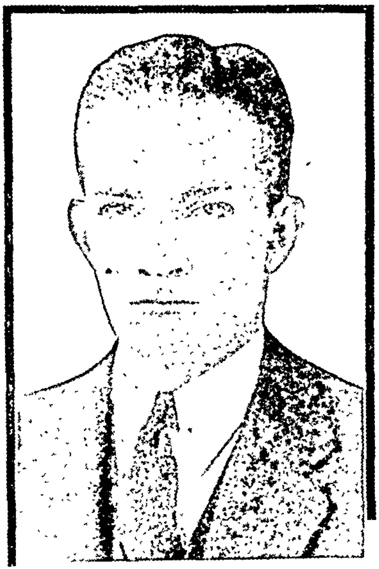
**Genevieve Tucker,** Livingston, N. J.; University of Michigan Homeopathic Medical School, Ann Arbor, 1880; died September 28, aged 89, of cardiovascular renal disease and *sarcoma of the left forearm.*

**Carl Christian Vogel,** Elroy, Wis.; Bennett Medical College, Chicago, 1901; Northwestern University Medical School, Chicago, 1903; died in the Richland Hospital, Richland Center, September 26, aged 74, of bronchopneumonia, paralysis agitans and arteriosclerosis.

**Frederick Paul White,** Lemongrove, Calif.; University of Louisville (Ky.) Medical Department, 1888; died in the Paradise Valley Sanitarium and Hospital in National City, October 30, *aged 84, of heart disease and hypertension.*

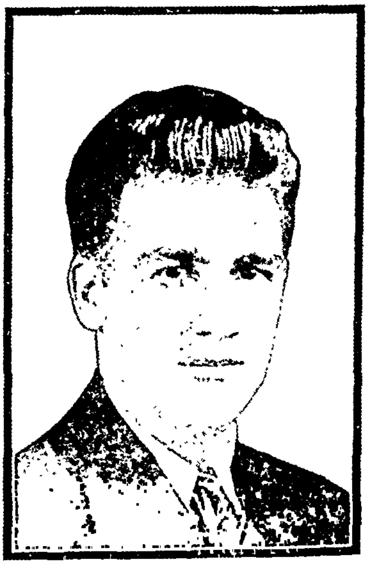
**Charles Edward Wooding** ⊕ Narberth, Pa.; University of Virginia Department of Medicine, Charlottesville, 1905; died October 5, aged 69, of coronary occlusion.

## KILLED IN ACTION



Lieut. Henry W. Hughes
M.C., A.U.S., 1906-1945

Capt. Abraham Sophian Jr.
M.C., A.U.S., 1915-1944



Capt. Norman E. Zahrt
M.C., A.U.S., 1915-1946

**Henry William Hughes,** New York; Georgetown University School of Medicine, Washington, D. C., 1933; member of the American Medical Association; interned at St. Vincent's Hospital; served a residency at the Central Islip State Hospital at Central Islip, N. Y.; began active duty as a first lieutenant in the medical corps, Army of the United States, in April 1942; in April 1943 was listed as a battle casualty and prisoner of war in Germany; killed in action in the European area March 31, 1945, aged 38.

**Abraham Sophian Jr.,** Kansas City, Mo.; Cornell University Medical College, New York, 1941; interned at the Mount Sinai Hospital in Cleveland; entered the medical corps, Army of the United States, as a first lieutenant *in July 1942; promoted to captain;* later transferred to the 507 Parachute Infantry Regiment; reported as missing in action June 11, 1944, in France; died in July 1944, aged 29.

**Norman Eldridge Zahrt,** Marengo, Iowa; State University of Iowa College of Medicine, Iowa City, 1941; interned and served a residency at the University Hospitals in Iowa City; began active duty as a first lieutenant in the medical corps, Army of the United States, in December 1942; promoted to captain; missing in action July 25, 1945; aged 30; determined dead July 26, 1946.

# Foreign Letters

## LONDON

*(From Our Regular Correspondent)*

Dec. 11, 1948.

### Lord Horder's Criticisms of the National Health Service

Lord Horder, who is chairman of the Fellowship for Freedom in Medicine, has criticized the National Health Service in the lay press. He admits that as it has been in action only five months it is perhaps too soon to judge how much the patient on the one hand, and the doctor on the other, have gained or lost by the nationalization of medicine. Fortunately, the general health of the community has been high, which has kept the medical work low. In two matters the patient is feeling the pinch. One is the difficulty in getting his medicines without paying for them. The other is the sudden and considerable rise in the cost of beds in private hospital wards.

The citizen as taxpayer will have noted with some alarm that the estimated budget for the Service has been greatly exceeded. As regards the doctor, the defects stand out clearly. "Evidence is accumulating," says the secretary of the British Medical Association, "that the burden of work, particularly paper work, has greatly increased, that in many instances income has gone down; that private practice in many areas has virtually disappeared." Dr. Dain, chairman of the British Medical Association Council, repeats the dirge: "We have two difficulties—the demands on the doctors made by the patients and the insufficient pay for the doctors. We warned the Government that there was not the manpower in the medical profession or the nursing profession, nor the hospital beds available to implement the Service. Our warning was not heeded and now we are reaping the unfortunate consequences." The tragedy is that the precipitancy in nationalization was not halted by the British Medical Association.

The hundreds of letters received by the newly formed Fellowship for Freedom in Medicine show anomalies and obstructions. One doctor writes that the whole ethical basis of his daily work has been undermined. He has either to adhere to private work and suffer grave financial loss or else join the Service and take on more patients than he can look after adequately. At the moment he compromises by limiting the Service list, but the position is difficult and may not be tenable for long. Another doctor complains of grave financial loss. Both types of letter could be multiplied indefinitely. It may be said this is only the doctor's point of view. Lord Horder replies, "There is no such thing as only the doctor's point of view. Bureau or no bureau the basic element of any service must always be the doctor. The crass folly of not recognizing this and of assuming that personnel can be nationalized led to this colossal blunder. The essence of good doctoring is diagnosis, which calls for time and a close-up with the patient, both of which are now denied to thousands of practitioners. That a doctor cannot pay his way unless he has 4,000 possible patients on his list is as great a disservice to the public as to the medicine."

### Renewed Attempt to Establish a National Health Service in Australia

For some time the Australian Government, which is under the control of the Labor Party, has tried to introduce a National Health Service, but has been successfuly resisted by the medical profession. The Minister of Health has now introduced a new bill for the purpose. He explained that the measure merely outlines the services, details of which could be progressively developed by regulations. The Government did not contemplate, nor did the Constitution permit, any nationalization of doctors or dentists. It was proposed to establish advisory committees of these professions to exercise a real influence on the development of the scheme. A grave shortage of doctors and dentists, facilities and buildings made gradual development of the services inevitable. The bill enabled the Commonwealth to make grants to the Australian states and other authorities for the construction, improvement and equipment of hospitals and for the provision by the states of any national health service. The services to be provided included general, consultant, specialist, dental, maternal and child health services, aerial medical and dental services and diagnostic and therapeutic convalescent after-care and nursing. The bill also authorized establishment of a medical benefit scheme for the payment of a portion of the fee of doctors. The British Medical Association had been invited to act on the committee with Commonwealth officers to consider the schedule of fees and other problems, which involved no interference with the doctor-patient relation. The patient would visit the doctor in the usual way and on his advice go, if necessary, to the appropriate specialist, half of whose fee the Government would pay. The bill authorized all efforts of doctors to establish group practices and would establish health centers, corresponding to the offices of large medical partnerships, which would provide general practitioner, specialist and diagnostic facilities. The scheme would cost annually for doctors $24,000,000.

It will be noticed that the Australian scheme differs from the British National Health Service in that the patient has to pay half the specialist's fee, while in Britain he pays nothing. This is certainly an improvement, as it does somewhat reduce the evils of "something for nothing," which, as shown in previous letters to The Journal, is the root of many evils in the British National Health Service.

### Munificent Gift for Surgical Research and Education

London is becoming more than ever an international medical center. The latest development is due to the munificence of the automobile magnate Lord Nuffield, who has already done so much to promote medical research. He has now given $1,000,000 to the Royal College of Surgeons for the promotion of research and education in the surgical sciences and in order to increase facilities and amenities for young surgeons, particularly those from the British Dominions, the United States and other countries who come to Britain for advanced study. The donor feels that if the Royal College of Surgeons is to make the fullest use of its facilities it is desirable to have residential accommodation on its own site, so that graduates who are studying surgery and the basic sciences in London may have access at all times to the unique museums, the library and the laboratories of the college. The donor also strongly believes in the beneficial influence of collegiate life. His gift is to be devoted to erecting a College of the Surgical Sciences attached to the Royal College of Surgeons, where the students will be able to live, to meet socially the principal surgeons of this country who will be attending the college and also distinguished surgical teachers from other countries, who will naturally use the college during their visits to London. It will be known as the Nuffield College of Surgical Science.

The donor is hopeful that those who have the privilege of living in the college and those who use its amenities will be imbued with something of the spirit of the collegiate life of the older residential universities, and that they will make contacts with leaders of their profession, which will be a stimulus to them and their own pupils throughout their lives, however many thousand miles they may be away from London, to the ultimate benefit of all in need of surgical aid throughout the world.

## PARIS

*(From Our Regular Correspondent)*

Nov. 15, 1948.

### Distillate of Cod Liver Oil, a Powerful Antibiotic

J. Solomides discovered in 1946 that the product of distillation of cod liver oil is an antibiotic strongly bactericidal. Experiments in vitro show that microbes in contact with this distillate die hundreds of times more quickly than do microbes in contact with cod liver oil.

| | Cod Liver Oil, Minutes | Distillate, Minutes |
|---|---|---|
| Colibacillus | 360 | 0.5 |
| Staphylococcus | 360 | 0.5 |
| Bacillus tuberculosis | 2,800 | 10 |

Experiments on guinea pigs have confirmed the antibiotic power of this product. The author has made the first therapeutic trials with local application of the distillate in pure form or incorporated in an excipient with a petrolatum or wool fat base, in microbic or amicrobic dermatitis. Results were excellent and rapid in 3 cases of furuncle, some cases of acne, 4 cases of onychomycosis and 5 cases of mycosis. The author has obtained recoveries in 7 of 10 cases of chronic eczema, in 3 cases of burns of the second degree and 2 roentgen ray burns. The author has been struck by the antiphlogistic and soothing effect of this product, its composition being 82 per cent fatty acid and 18 per cent nonsaponifiable substances; the former may be endowed with a vitaminic F activity, which could account for the action on eczema and pruritus.

J. Cabibel has studied the effect of this distillate in certain conditions associated with adenopathy or other tuberculous symptoms, which Burand, Dejean, Jaquelin and others consider as pretuberculous or atypical tuberculosis. Treatment is 0.10 Gm. distillate of cod liver oil given in suppositories every four to five days for three to four weeks. In 50 per cent of the cases, the treatment has been effective, sometimes in a spectacular way; in 25 per cent improvement was less noticeable, and in 25 per cent it was still inapparent after the administration of eight to ten suppositories. In 1 of 2 cases of typical tuberculosis the treatment has proved satisfactory after three months.

### Meeting of Experts on Plague and Typhus

Under the auspices of the International Office for Public Hygiene and of the World Health Organization a meeting took place in Paris October 5-8, to promote an international campaign against plague and typhus. The discussion was conducted by Dr. Gaud, director of the office; Dr. Y. Biraud, director, Division of Epidemiology, World Health Organization, acted as secretary; others taking part were Dr. G. Blanc, director of the Pasteur Institute of Morocco, and Dr. A. Macchiavello, epidemiologist of the Panamerican Sanitary Office, Lima, Peru. The report drawn by these scientists shows that: (1) it is possible to eliminate all danger of plague in villages and towns thanks to D.D.T. (dichlorodiphenyltrichloroethane) and to certain poisons against rats; (2) plague among rodents, living far away from human communities escapes all control, but does not constitute a serious danger to man; (3) the use of living vaccines in Africa and Java (15,000,000 persons have been vaccinated) proved effective for the prevention of plague, but vaccination can play only a secondary part, rats being transmission agents of the disease; (4) according to experts, in many cases formerly considered fatal, cure can be effected today with streptomycin and sulphonamide compounds; (5) D.D.T. also plays a part of prime importance in the prevention of typhus; (6) remarkable results in the treatment of typhus were obtained with an antibiotic similar to streptomycin, the existence of which has been brought to light by recent studies made in South America.

### Larger Venous Grafts Successful

In 1920, Professor R. Leriche attempted to replace segments of arteries affected with thrombosis by venous graft. At that time numerous attempts were not entirely successful except when the graft did not extend over 5 to 6 cm. Larger grafts were considered impracticable on account of the risk of provoking a new thrombosis. Recently J. Kunlein, one of the disciples of Leriche, resumed this method, using the anticoagulative power of heparin, and he has performed venous grafts of 15, 26, 28 to 29, 34.5, 35.5, 37 and 47 cm. in 8 patients seriously affected and whom vasodilator methods did not improve sufficiently. The results, presented at the last meeting of the National Academy of Sciences by Professor Leriche and Dr. Kunlein, were excellent: Once the graft is performed, blood circulates freely, the peripheral pulse reappears, the foot gets warm again and pain disappears. Seven grafts out of 8 have remained permeable, among which is a 37 cm. graft of five months' duration, another of three months and others of only a few weeks. Patients operated on have resumed walking without claudication, which is the great advantage over arteriectomy. It is the first time that venous grafts of such length have been realized without alteration of the venous endothelium in 7 cases out of 8. The authors think that this new method will transform the future of patients affected with arterial thrombosis.

## ITALY

*(From Our Regular Correspondent)*

FLORENCE, Nov. 15, 1948.

### Semb's Thoracoplasty

At a meeting of the Association Against Tuberculosis in Genoa, Prof. Biancalana presented a report of Semb's thoracoplasty, an operation frequently done in the Anglo-American countries, but little known in Italy. The speaker gave an exact description of the operative technic and particularly of the apicolysis. The exposure is obtained along the mediastinal fascia instead of by the extrapleural route. The intervention described by Semb in 1935 consisted of the removal of five to six ribs in one stage. Resulting complications were frequent, due to massive caseous pneumonia or aspiration bronchopneumonia, particularly in phrenectomized patients, who have difficulty in expectoration. Lobar or total atelectasis was frequent, which prepared the ground for pneumonia. These complications induced Biancalana in 1940 to carry out the intervention in two stages, generally with the removal of three ribs in each stage. Criticism, starting with the subdivision of the intervention into several stages, that the patient may present himself the second time in worse condition, that the resection of the ribs must be more extensive and that the infectious complications may be greater, does not seem well founded according to Biancalana's experience. Neither does the speaker share the conviction of some surgeons that the cavities, being pushed back by the apicolysis toward the elastic parenchyma, may be less easily collapsible than those pushed against the rigid floor of the vertebral bodies and the mediastinum, as in simple plastic operations. The speaker has observed suppuration of the operative breach in only 2 or 3 per cent of the cases. Occasionally a rise of temperature makes one think of an infection of the sero-hemorrhagic collection in the cavity of the apicolysis. In those cases Biancalana omits an explorative puncture because of the risk of spreading infection to an area where it did not exist, and he does not advise maintaining drainage for the first twenty-four hours as Semb does, since he believes the extravasation useful for maintenance of the collapse of the apex. Biancalana concluded that the distrust in this intervention is not justified. In fact in his cases the mortality rate was 3 per cent, while in 79 per cent of the cases he obtained good results or stabilization. In only 18 per cent did he observe doubtful results or failures.

### Congress of the Latin Otorhinolaryngologic Association

This association held its seventh congress in Turin Sept. 20-22, 1948, dealing extensively with the subject of the palatine tonsil.

Terracol and Guerrier reported on the blood supply of the tonsils. Bachi reported on the embryology of the palatine tonsil. Taillens discussed tonsillar physiopathology. Porta reported on the changes in the tonsil at various ages. In the third, the fourth and the fifth decade the pavement epithelium which covers the free part of the tonsil presents two types of cell described by Agazzi; i. e., corneal pearls and epithelial bodies which reveal a morphologic and structural analogy with Hassal's corpuscles in the thymus. Mottura reported on the hyperplastic and neoplastic phenomena associated with the lymphoreticular tissue of the tonsil. Cambrelin spoke about tonsillar manifestations in the pathology of leukemia, aleukia and lymphogranulomatosis.

## MADRID

*(From Our Regular Correspondent)*

Nov. 15, 1948.

### Cortical Secretion and the Defense of the Organism

Dr. Morros Sarda, professor of physiology at the Escuela Española de Veterinaria, has done important studies on cortical secretion. He is a pupil of Dr. G. Marañón and his work was accomplished under the auspices of the school mentioned. The author found experimentally that there is a basic secretion of cortical hormones which, in certain circumstances, is increased, through intervention of the corticotropic hormone of the hypophysis. Because of the difficulties of determining the cortical steroids in the blood and urine, the author followed the methods of Long, Lowenstein and Zwemer for determining the values of cholesterol and of ascorbic acid in the blood, the changes in which values are reliable as representing the values of the cortical secretion. High values of ascorbinemia and of cholesterolemia are observed in all diseases corresponding to Selye's syndrome. They show cortical hypersecretion stimulated by corticotropic hormone. The initial reaction in these circumstances seems to be the secretion of epinephrine, as previously suggested by Cannon. In normal dogs weighing between 12 and 15 Kg., an injection of epinephrine in a dose varying between 0.1 and 0.4 mg. provokes an increase of blood sugar, blood cholesterol and blood ascorbic acid within the first one to two hours after the injection. That is the same response obtained to the injection of corticotropic hormone, which response seems to indicate that the medullary hormone provokes the discharge of the cortex through the hypophysis. This interpretation will be substantiated by experiments which are under way on hypophysoprivic animals. These results agree with those reported by Long on the effect of epinephrine in lowering the amount of cholesterol and ascorbic acid in the adrenal glands, probably because of the immobilization of both substances.

Studies are also under way to ascertain the changes of the blood of normal dogs after injection of large doses of either whole cortical extract or desoxycorticosterone acetate. They include refractometric quantitative determinations of the albumins and globulins of the blood and the changes of blood proteins after the injection. It has been proved that the injection of whole cortical extracts causes an increase of the proteins of the blood at the expense of the globulin fraction, the increase being associated with an increase of the speed of sedimentation of the erythrocytes and more or less lymphopenia. These results agree with those of White and collaborators. The changes caused by the injection of desoxycorticosterone acetate are of the same order.

A "syndrome of alarm" has been provoked in normal dogs by administering an intraperitoneal injection of saline serum near the freezing point. Study of the blood (leukocytic formula, sedimentation rate, albumins, globulins, glycemia, ascorbic acid and cholesterol) yields data similar to those obtained by the direct injection of either the corticotropic principle or the whole extract of the cortex. It is possible, as White suggested, that the increase of globulins is due to lympholysis with consequent liberation of gamma globulins.

The intraperitoneal injection of cold saline serum to splenectomized animals causes the same changes in their blood as it does in normal animals. These results do not confirm the point of view of Ungar, who believes that the spleen intervenes in the reaction of alarm by means of the production of "splenine" (a spleen substance).

The changes of ascorbic acid in the blood of normal or adrenalectomized rats were ascertained after intraperitoneal injection of either saline serum or epinephrine. These experiments were done on rats because these animals survive the operation if they are given salt in the water they drink and the technic of adrenalectomy in rats is simple. Because the amount of blood necessary to determine the level of ascorbic acid in the blood cannot be obtained from the same animal, rats from different lots were used. All the animals were kept on the same diet and were of about the same weight when they were used. The values of ascorbic acid in the blood of normal rats (first lot) which were killed for this determination were considered as basal values. Normal rats in the second and third lots had an injection of epinephrine and were killed one and two hours, respectively, after the injection of epinephrine. The values of ascorbic acid in the blood of rats of the second lot were higher than those of rats of the third lot, which in their turn had higher values than those of rats in the first lot.

The blood levels of ascorbic acid in adrenalectomized rats are not modified by the administration of an injection of epinephrine. The intraperitoneal injection of very cold saline serum induces changes in the blood levels of ascorbic acid in normal rats but not so in adrenalectomized rats. The results support the belief of the intervention of epinephrine in the development of the syndrome of alarm, giving origin to the consecutive intervention of corticotropic hormone and further occurrence of cortical secretion.

In animals into which a large amount of cortical extract is injected before they are subjected to the stimulus provoking the reaction of alarm, the changes of the blood in the course of the syndrome are almost unnoticeable (the ascorbic acid level in the blood frequently does not change). This fact, which was previously reported by the Sayers, suggests that in these circumstances there is neither a secretion of the corticotropic principle nor a subsequent cortical reaction. The fact shows that the secretion of the corticotropic principle is conditioned by a certain level of cortical hormones or cortical principles in the blood. If the latter diminishes, as probably happens in animals not previously treated, and subjected to the stimuli which produce the syndrome of alarm, the latter will occur in the presence of a diminished level of the hypophysial principle, with consequent mobilization of cortical steroids together with ascorbic acid and cholesterol. In animals previously treated, the exogenic cortical hormone prevents lowering of this substance in the blood and the consequent hypophysial reaction. This also occurs with either the thyroid hormone or the estrogens, the lowered concentration of which in the blood causes hypersecretion of the correspondent glandulotropic principle.

The results of these experiments show that the body consumes a large amount of cortical hormones in the conditions created by the syndrome of alarm. They seem to place some value on the role of epinephrine in stimulating secretion of cortical hormones, which is regulated by the level of these hormones in the blood. Lowering of the level will stimulate secretion and liberation of the corticotropic principle, whereas an increased level will delay secretion. It is possible, however, as Long suggested, that epinephrine is the cause of the consumption of cortical hormone by the tissues through the metabolic changes which it produces.

The authors believe that the chain of facts is as follows: stimulation of the sympathetic nervous system with consequent discharge of epinephrine; consumption of the cortical hormone in the blood by the tissue, through the metabolic changes due to the effect of epinephrine; lowering of the cortical hormone in the blood and discharge of the corticotropic principle; discharge of adrenal cortical secretion together with secretion of ascorbic acid and of cholesterol, and increased amount of ascorbic acid and cholesterol in the blood, lymphopenia, lympholysis, liberation of lymphocytic proteins and increase of proteinemia at the expense of the fraction of globulins.

## Correspondence

### EPILEPSY IN CHILDHOOD

*To the Editor:*—In the December 4 issue of The Journal, page 1012, Dr. M. G. Peterman in an article "Epilepsy in Childhood" speaks disparagingly of "learned authorities" who "offer false encouragement and lead to cruel disillusionment" by speaking of "83 per cent improvement in epilepsy and of the 'hopeful disorder.'"

However, Dr. Peterman must himself be one of these "noted authorities," because in this same paper he presents data showing that 80 per cent of his patients given either phenobarbital or the ketogenic diet were improved. Presumably he still further increased this percentage by giving unimproved patients other drugs now available, diphenylhydantoin sodium ("dilantin sodium"), methylphenylethyl hydantoin ("mesantoin"), trimethadion ("tridione") or "thyphenytoin" (5,5-phenylthienylhydantoin).

When speaking to panic-stricken parents about epilepsy or other serious illnesses, must we avoid the word "hopeful" unless we can expect improvement in more than 80 per cent of patients? Must we remain gloomy until the proportion is 90 per cent, or, perhaps, 100 per cent?

William G. Lennox, M.D., Boston.

[Note.—The letter was referred to Dr. Peterman, who replies:]

*To the Editor:*—I may have spoken disparagingly of the misinformation given to the public by the "learned authorities" in the advertising of the medical journals.

One of these advertisements reads "equal opportunities for the child with petit mal! the opportunity to develop his natural aptitudes . . . to grow up with other children—like other children . . . to have full control of symptoms . . . this is ————'s answer to a high percentage of petit mal victims and their anxious parents."

The advertisements, and particularly the article in the *Saturday Evening Post,* imply that epilepsy may be cured. The public has so interpreted the article; hence, the criticism which I presented in my article. I am basing my conclusions on the correspondence and telephone calls I received after the publication of the article. I do not believe that a percentage reduction in the number of seizures means improvement as long as convulsions continue at least once a month and may be anticipated at any time.

You will note that in my article and in all of the others I have never used the word "cure." I have reported my results as they have been collected from my records by my assistants and me. This series is not large enough to justify conclusions and therefore they were not drawn.

When I speak to "panic-stricken parents" I try to give them the honest facts and the truth of the situation concerning the case in hand. I do believe that these parents may be given all the hope possible. They should be encouraged in every way. However, that does not mean to go to the length of advertising such statements as "83 per cent improvement" or that "epilepsy can be licked."

I would quite agree with Lennox and the Gibbs in their article in The Journal, Sept. 9, 1939, page 1002, in which they conclude after making tracings on 138 parents that "definitely abnormal records were obtained in 54 per cent of the relatives, against 6 per cent in a control group who were unrelated to epileptic persons. In forty-six of the families, records were made of both parents. In 28 per cent both parents and in 94 per cent at least one parent had abnormal records. We believe that this evidence indicates that the dysrhythmia of epilepsy is inheritable and such a dysrhythmia when demonstrable may represent a predisposition to epilepsy or some allied disorder.

"These observations should be of practical value in the prophylaxis and eugenics of epilepsy and should assist the physician in tracing the descent of epilepsy and in advising patients and their relatives about marriage."

That is exactly what I should like to do in the message that I believe should be given to the public. While this disease may not be inherited any more than diabetes, my point is that it is inherited as is diabetes and that the answer for its elimination lies in eugenics and birth control.

M. G. Peterman, M.D.,
411 E. Mason St., Milwaukee 2, Wis.

### THE DOCTOR AND WORLD PEACE

*To the Editor:*—We should like to emphasize that the greatest problem in preventive medicine today is the preservation of peace. In order to achieve a lasting peace, we feel that the extension of the principle of law and order to the world level is the only method that will work. To this end, it is necessary that the United States officially propose that the United Nations be strengthened sufficiently to enforce peace, and that the charter of the United Nations be amended for this purpose.

There are apparently three courses open: an indefinite armed truce, a third world war and world government. Opinion in favor of world government is growing rapidly in the United States and throughout the world. We do not know whether or not Russia will join in a world government. The only way to find out is to make the proposal. The United States can lose nothing by making such a sincere proposal and the whole world stands to gain immeasurably by such action.

Since the establishment of a durable peace would be the greatest measure ever undertaken in preventive medicine, we urge our fellow physicians to join and support their local chapters of the United World Federalists and we ask the House of Delegates to endorse the principle of extending enforceable law and order to the world level.

Edward Bortz, M.D.,
Past President of the American Medical Association and member of Advisory Board of Philadelphia Area Council of United World Federalists.

John Arnett, M.D.,
Member of the Philadelphia Area Council of United World Federalists.

Horace Pettit, M.D.,
President, United World Federalists of Pennsylvania.

# Miscellany

## RECOMMENDED TERMS AND DEFINITIONS FOR CELLS OF THE LEUKOCYTIC, ERYTHROCYTIC AND THROMBOCYTIC SERIES

The Committee for Clarification of the Nomenclature of Cells and Diseases of the Blood and Blood-Forming Organs, sponsored by the American Society of Clinical Pathologists and the American Medical Association, has prepared two reports[1] of its recommendations for preferred hematologic terminology which are briefly summarized in the present report. It is not the intention of the committee to imply from its recommendations of terms to be used that the origin of all these cells has been settled. No changes are suggested in the criteria in current use for determining the series to which a cell belongs. It is planned that a permanent body should reexamine the terms periodically, perhaps every five or ten years.

The present report consists of general terms which are recommended, followed by a list summarizing the names for each

### *Terms To Be Used and Terms To Be Avoided*

(The essential characteristics which distinguish each stage of development from the preceding and following ones are given in italics above and below the arbitrary lines of demarcation.)

| Term To Be Used | Terms To Be Avoided |
|---|---|
| **Lymphocytic Series** | Lymphoid, lymphatic, lymphogenous, lymphocyte, mononuclear |
| Lymphoblast<br>*Fine chromatin structure* | Myeloblast, hemocytoblast, lymphoidocyte, stem cell, lymphocyte |
| *Chromatin clump*<br>Prolymphocyte<br>*Larger cell size or finer chromatin* | Large lymphocyte, pathologic large lymphocyte, atypical leukocytoid lymphocyte, monocyte, immature lymphocyte |
| *Coarse chromatin structure*<br>Lymphocyte | Small, medium or large lymphocyte, normal lymphocyte, small medium or large mononuclear |
| **Monocytic Series** | Monocytoid, monocytogenous, mononuclear, monocyte |
| Monoblast<br>*Fine chromatin structure* | Myeloblast, hemocytoblast, lymphoidocyte, lymphocyte, stem cell, immature monocyte |
| *Irregularly shaped nucleus*<br>Promonocyte<br>*Nucleolus present* | Premonocyte, hemohistioblast, immature monocyte, Ferrata cell |
| *Nucleolus absent*<br>Monocyte | Large mononuclear, transitional, clasmatocyte, endothelial leukocyte, histiocyte, resting wandering cell |
| **Granulocytic Series** | Myeloid, myelogenous, myelocyte, myelocytic, granulocyte, leukocyte, leukocytic, leucocyte, leucocytic |
| Myeloblast<br>*Fine chromatin structure* | Granuloblast, hemocytoblast, lymphoidocyte, lymphocyte, stem cell |
| *Chromatin clump*<br>Progranulocyte<br>*No specific granules* | Promyelocyte II, leukoblast, myeloblast, premyelocyte, promyelocyte, progranulocyte A |
| *Specific granules*<br>Myelocyte<br>*Round or oval nucleus* | Granulocyte, myelocyte B, non-filament, class I |
| *Indented nucleus*<br>Metamyelocyte<br>*Bean or kidney shaped nucleus* | Metagranulocyte, juvenile, myelocyte C, nonfilament, class I |
| *Part of nucleus with parallel sides*<br>Band cell<br>*No filament present* | Staff cell, stab cell, non-filament, class I, rod nuclear, polymorphonuclear, stabkernige, rhabdocyte, non-segmented |
| *Nuclear lobes connected by filaments*<br>Segmented cell | Polymorphonuclear, filamented, class II, III, IV or V, lobocyte |
| **Plasmacytic Series** | Plasma cellular, plasmacytogenous, myeloma cell, plasmacyte |
| Plasmablast<br>*Fine chromatin structure* | Myeloblast, hemocytoblast, lymphoidocyte, lymphocyte, stem cell, lymphoblastic plasma cell, myeloma cell |
| *Chromatin clump*<br>Proplasmacyte<br>*Nucleolus present* | Türk cell, Türk irritation form, lymphoblastic or myeloblastic plasma cell, myeloma cell |
| *Nucleolus absent*<br>Plasmacyte | Plasma cell, Unna's plasma cell, Marschalko's plasma cell, plasmacytoid lymphocyte, myeloma cell |
| **Erythrocytic Series** | Erythroid, erythrocytoid, erythron, erythrocytogenous, erythrocyte |
| Rubriblast<br>*Fine, stippled chromatin* | Erythroblast, megaloblast, pronormoblast, promegaloblast, normoblast, hemocytoblast, stem cell, myeloblast, lymphoidocyte, karyoblast |
| *Chromatin clump*<br>Prorubricyte<br>*Nucleolus present* | Erythroblast, megaloblast, pronormoblast, normoblast, macronormoblast, macroblast, prokaryocyte |
| *Nucleolus absent*<br>Rubricyte<br>*Definite chromatin structure* | Normoblast, pronormoblast, macronormoblast, erythroblast, polychromatophilic normoblast, karyocyte |
| *Pyknotic nucleus*<br>Metarubricyte<br>*Nucleus present* | Normoblast, erythroblast, metakaryocyte |
| *Nucleus absent*<br>Reticulocyte<br>*Reticulum present with supravital stain* | |
| *No reticulum*<br>Erythrocyte | Red blood cell, erythroplastid, normocyte, akaryocyte |
| **Thrombocytic Series** | Megakaryocytic, platelet, thrombocyte |
| Megakaryoblast<br>*Fine chromatin structure* | Megalokaryoblast |
| *Chromatin clump*<br>Promegakaryocyte<br>*Nucleolus present* | Premegalokaryocyte |
| *Nucleolus absent*<br>Megakaryocyte<br>*Nucleus present* | Megalokaryocyte |
| *Non-nucleated cytoplasmic fragment*<br>Thrombocyte | Platelet, thromboplastid |

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[1] First report of the Committee for Clarification of the Nomenclature of Cells and Diseases of the Blood and Blood-Forming Organs. Am. J. Clin. Path. **18**: 443-450, May, 1948. Second report of the Committee for Clarification of the Nomenclature of Cells and Diseases of the Blood and Blood-Forming Organs, (to be published).

series and for the individual cells, showing the number of stages of differentiation which are of clinical significance, giving clear-cut criteria for the exact point of arbitrary differentiation between stages, and names previously in use, which it is recommended be avoided so that clarity can be attained in hematologic literature and reports.

### Miscellaneous Definitions

*Leukocyte:* Any white blood corpuscle or its precursor.

*Blast Cell:* The most undifferentiated cell of any series, having fine chromatin structure, usually demonstrable nucleoli and basophilic cytoplasm with or without azurophilic granules.

*Fine Chromatin Structure:* A nuclear appearance of a background of homogeneous lighter-staining parachromatin, overlaid by a darker-staining lace net meshwork or finely stippled pattern of basichromatin with no aggregation of the basichromatin into even a single clump of appreciable size.

*Nucleolus:* A homogeneous blue-staining area in the nucleus, staining more like the cytoplasm of the cell.

*Azurophilic Granules:* The granules seen typically in monocytes and lymphocytes. The term refers to an affinity for a particular dye and not to the color or the granules.

*Specific Granules:* Neutrophilic, eosinophilic or basophilic granules.

*Granulocytes:* An inclusive term to apply to cells containing ecific granules, regardless of stage of differentiation.

*Disintegrated Cell:* Any cell of any series in which the cyto-asmic outline or nuclear membrane has been disrupted, exclud-g changes that occur during mitosis. They should be recorded all differential reports.

*Pernicious Anemia Type:* The qualifying adjective phrase to applied to any cell of the erythrocytic or granulocytic series indicate the presence of morphologic changes characteristi-lly seen in pernicious anemia and certain other macrocytic emias. This change is a relative increase of parachromatin nucleated erythrocytes and giant forms with bizarre nuclei in the granulocytes.

Modifying adjectives may be applied to any of the recommended terms but their definitions should be clearly stated in all publications and reports.

# Medical Examinations and Licensure

## COMING EXAMINATIONS AND MEETINGS

### NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I & II.* Various Centers, Feb., June and Sept. 1949. *Part II.* April 1949. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2, Pa.

### EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology, Inc.: *Written.* July 15. Various locations. Final [illegible] is April 15. Sec., Dr. Curtiss B. Hickcox, [illegible] York 27.

American Board of Dermatology and Syphilology: *Written.* Various Centers, Feb. 17. *Oral.* New York City, April 1-3. Sec., Dr. George M. Lewis, 66 East 66th Street, New York 21.

American Board of Internal Medicine: *Oral.* San Francisco, Feb. 8-10, 1949. New York City, March 23-25. Philadelphia, June 1-3. *Written.* Oct. 17, 1949. Final date for filing application is May 1. Asst. Sec.-Treas., Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* Chicago, June 1949. Final date for filing application is Jan. 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

American Board of Obstetrics and Gynecology, Inc.: *Oral.* Chicago, May 8-14. Final date for filing application is April 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

American Board of Ophthalmology: *Written.* Jan. 14. *Oral.* San Francisco, March 21-24; New York, June 11-15; St. Louis, Oct. 15-19; Boston, Dec. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

American Board of Orthopedic Surgery: *Part I.* Various Centers, April and May. Sec., Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

American Board of Otolaryngology: New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

American Board of Pathology: Boston, April. Final date for filing application is March 1. Sec., Dr. Robert A. Moore, 507 S. Euclid Ave., St. Louis 10, Mo.

American Board of Pediatrics: *Oral.* St. Louis, Feb. 18-20. Baltimore, May 7-9. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

American Board of Physical Medicine: Atlantic City, June 4-5. Final date for filing application is March 15. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

American Board of Plastic Surgery: Examinations are given in June and November of each year in the home town of applicants. Sec.-Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

American Board of Psychiatry and Neurology: *Oral.* May. Final date for filing application is Feb. 15. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written.* Various Centers, March 1949. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

American Board of Urology: Feb. 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

### BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

Alaska:* Juneau, March 1. Sec.-Treas., Dr. W. M. Whitehead, Box 140, Juneau.

Arkansas:* Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 2-3. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

California: *Examination,* Los Angeles, Feb. 28-March 3. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

Connecticut:* *Hartford, March 8-9.* Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

District of Columbia:* *Reciprocity,* Washington, March 14. Sec., Dr. George C. Ruhland, 4130 Municipal Building, Washington.

Florida:* *Examination,* Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

Georgia: *Examination.* June, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Guam: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam, % F.P.O. San Francisco, Calif.

Indiana: *Examination.* Indianapolis, June. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

Maine: Portland, March 8-9. Sec., Dr. Adam P. Leighton, 192 State Street, Portland.

Maryland: *Examination,* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore.

Massachusetts: *Examination. Boston, March 8-11. Sec., Dr. George* L. Schadt, 413 E. State House, Boston.

Minnesota:* Minneapolis, Jan. 18-20. Sec., Dr. J. F. DuBois, 230 *Lowry Medical Arts Building, St. Paul.*

Mississippi: Jackson, June. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

Missouri: *Kansas City, Jan. 24-26.* Sec., Mr. John A. Hailey, State Capitol Bldg., Box 4, Jefferson City.

Montana: Helena, April 4-6. Sec., Dr. O. G. Klein, First National Bank Building, Helena.

Nebraska:* *Examination.* Omaha, June. Dir., Bureau of Examining *Boards, Mr. Oscar F. Humble, 1009 State Capitol Building,* Lincoln 9.

Nevada: Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

New Hampshire: Concord, March 10. Sec., Board of Registration in Medicine, Dr. John S Wheeler, 107 State House, Concord.

New Jersey: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

New Mexico: *Santa Fe, April 11-12.* Sec., *Dr. V. E. Berchtold,* 141 Palace Ave., Santa Fe.

New York: *Examination.* Various Centers, Feb. 1-4. Sec., Dr. J. L. Lochner, Jr., 23 S. Pearl St., Education Bldg., Albany.

North Carolina: *Endorsement.* Raleigh, Jan. 17. Sec., Dr Ivan M. Procter, 226 Hillsboro St., Raleigh.

Ohio: *Endorsement.* Columbus, Jan. 25 and April 5. *Written.* Columbus, June. Sec., Dr. H. M. *Platter, 21* W. Broad St., Columbus.

Pennsylvania: *Examination.* Philadelphia, Jan. 1949. Act. Sec., Mrs M. G. Steiner, 351 Education Bldg., Harrisburg.

Puerto Rico: *Examination.* Santurce, March 1. Sec., Mr. *Luis Cueto* Coll, Box 3717, Santurce.

South Carolina: Columbia, June 27-29. Sec., Dr. N. B. Heyward, *1329 Blanding St., Columbia.*

South Dakota:* Pierre, Jan. 18-19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

Texas: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

Utah: *Examination.* Salt Lake City, July. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

Vermont: *Examination.* Burlington, Feb. 3-5. Sec., Dr. F. J. Lawliss, Richford.

[illegible] Jan. 17-19. Sec., Dept of Licenses, Miss [illegible] npia.

[illegible] Cheyenne, Feb. 7. Sec., Dr. Franklin D. [illegible]

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* *Basic Science Certificate required.*

### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: Juneau, Feb. 21-26. Sec.-Treas., Dr. C. Earl Albrecht, Box 1931, Juneau.

Colorado: *Examination.* Denver, Mar. 2-3. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

Connecticut: New Haven, Feb. 12. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., *New Haven 10.*

District of Columbia: *Examination.* Washington, April 18-19. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., East, Washington.

Florida: *Examination. Gainesville, June 11.* Sec., *Mr. M. W. Emmel,* University of Florida, Gainesville.

Minnesota: *Examination.* April, June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

Oklahoma: Spring of 1949. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: Portland, March 5 and June 18. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

Rhode Island: *Examination.* Providence, Feb. 9. Chief, Mr. Thomas B. *Casey, 366* State Office Building, Providence.

South Dakota: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.

Tennessee: Memphis, March 21-22. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

Wisconsin: Madison, April 2.. Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College, Ripon.

# Bureau of Legal Medicine and Legislation

## MEDICOLEGAL ABSTRACTS

**Food and Drug Acts: Sufficiency of Evidence of Misbranding.**—The Pasadena Research Laboratories, Inc., and an individual defendant were found guilty on five counts of an information charging that they unlawfully introduced adulterated and misbranded drugs into interstate commerce. From judgments fining the laboratory and placing the individual defendant on probation, all the defendants appealed to the United States court of appeals, ninth circuit.

Two drugs manufactured by the defendants were involved in this proceeding. The first was known as "indoform," vials of which carried labels announcing that each cubic centimeter thereof contained three "international units" of posterior pituitary and 1 grain of "thyroid substance." A vial of this drug was sent to the office of the Food and Drug Administration in Washington, D. C., and was there examined by a pharmacologist and analyst employed by the Administration. He testified that he "found practically no posterior pituitary in that product, an almost immeasurable quantity." After conducting the test, he placed the bottle into a locked refrigerator until the next day, when he wrapped it, put a seal on it and sent it to San Francisco. He was asked whether or not the drug had contained 3 international units on the date of shipment by the defendant some six months previously, and he answered that it was his opinion that on the date in question "there was a quantity of posterior pituitary which was not measurable by the standard methods of measuring it, or there was none." When the drug reached San Francisco it was examined by a chemist for the Administration located in that city, who tested the drug for "thyroid content." He testified, "There was no thyroid present whatsoever."

The other drug was known as "pluri-B." The labels on vials of this drug set forth that this "sterile solution of pluri-B" contains 50 mg. of thiamine hydrochloride per cubic centimeter. The labels also said that the contents were "for intramuscular or intravenous use." A chemist in the employ of the Administration in Washington, D. C., examined vials of this drug and testified that he found it contained approximately 33 mg. per cubic centimeter. Other vials of this drug were examined by the chief of the chemical section of the medical division of the Administration who held a doctor's degree in biochemistry. He testified that he put the vials up to a light and found "with the naked eye" that all six of them "were very badly contaminated with undissolved material." He also testified, ". . . from experience with these materials and from general information of so-called supersaturated solutions, of which this is an example, I would say that this undissolved material was undoubtedly present on June 18 when the material was shipped."

In discussing the many contentions raised by the defendants on appeal, the court of appeals said, among other things, that, while the defendants professedly recognize the rule that the government must prove its case beyond a reasonable doubt, their briefs are replete with expressions which seem to indicate that in reality the standard actually insisted on is that the government's evidence should remove all possible doubt. Quoting from a prior United States circuit court of appeals case, the court said, "The proof in a criminal case need not exclude all doubt. If that were the rule, crime would be punished only by the criminal's own conscience, and organized society would be without defense against the conscienceless criminal and against the weak, the cowardly and the lazy who would seek to live on their wits. The proof need go no further than reach that degree of probability where the general experience of men suggests that it has passed the mark of reasonable doubt."

The defendants also contended that the opinions of the government's witnesses, based on tests made after the drugs had been shipped to Washington, were "absolutely worthless because the expert witnesses had no knowledge that the alleged adulteration or misbranding did not occur enroute to the doctor's office, or in the doctor's office, or in the hands of the Government inspectors who picked up the drugs, or enroute to Washington, D. C., when shipped there by the Government inspectors." Carried to its logical conclusion, said the court of appeals, this "chain of possession" theory would require the government to prove affirmatively that each one of the many mail clerks, administration clerks and experts, doctors, nurses, express company employees "and others" handled and cared for the goods so that changes could not occur while the drugs were in their custody. Such a rigorous exaction regarding proof is supported neither by reason nor by authority. In fact, the court concluded, "There is no such rule and never has been." There is a presumption that private persons do their duty and exercise due care and this presumption should apply also to doctors and nurses whose professional training and traditions teach them to be meticulous in the handling of preparations that are to be administered to their patients. The defendants, said the court, have not pointed out, nor have we been able to find, a scintilla of evidence in the record to indicate that any of the vials were mishandled by a single postal clerk, expressman, doctor, nurse, government analyst, administration mail clerk, or any one else who had any connection with the sealing, labeling, consignment, transmission, unwrapping, unsealing or testing of the products in question. The only suggestions of mishandling are in the form of dire possibilities conjured up by resourceful counsel. On the basis of a careful study of the entire record in this case the court of appeals finally concluded that no error had been committed in the trial court and that the judgment against the defendants should be affirmed. (Certiorari denied by U. S. Supreme Court.)—*Pasadena Research Laboratories, Inc. v. United States, 169 F. (2d) 375 (1948).*

**Chiropractic Practice Acts: Board may not Waive Basic Science Act Requirements.**—The defendants, constituting the State Board of Chiropractic Examiners, were charged with issuing a certificate to practice chiropractic without being presented with a certificate of ability in the basic sciences. From a judgment of guilty, they appealed to the Supreme Court of Arkansas.

The chiropractic practice act of 1921 authorized the board to grant reciprocity "with States having equally as high literary professional requirements as provided in this State." The license seeker must also have graduated from a reputable college of chiropractic teaching a resident course of not less than three years in anatomy, chemistry, physiology, hygiene, symptomatology, chiropractic principles and diagnosis. An applicant meeting these requirements was granted a certificate to practice chiropractic in Arkansas without having first presented a certificate of ability in the basic sciences. The defendant argued that the chiropractic board is expressly empowered to recognize a reciprocating state's license because there has been a determination that the applicant was qualified in basic science subjects and that such state exacted literary professional requirements equal in dignity to those established in Arkansas. In 1929, however, the legislature established a board of basic science examiners. Section 19 of the basic science act directs that none of its provisions shall be construed as repealing any statute in force at the time of its passage "with reference to the requirements governing the issuing of a license to practice the healing art or any such branch thereof."

We think, said the supreme court, that the basic science act "superimposed [its] requirements" on preexisting laws. Since it directs how the licensing authority should proceed and is complete in this respect, construction is not difficult. Section 1 bars from examination any person who has not presented to the licensing board a certificate of ability in the basic science subjects issued by the state board of examiners [in the basic sciences]; but that board, Section 8, may waive the examination required by Section 7 and issue a certificate on which the licensing board may act. In either event the basic science board must certify. In the instant case the basic science board did not certify. Accordingly the judgment of guilty was affirmed. *Lindquist v. State, 213 S.W. (2d) 895 (Ark., 1948).*

# Current Medical Literature

## AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

### American J. Obstetrics and Gynecology, St. Louis

56:409-616 (Sept.) 1948. Partial Index

Further Follow-Up Study of Eclampsia. L. C. Chesley, W. H. Somers and F. H. Vann.—p. 409.
Sulfadiazine and Penicillin Prophylaxis in Cesarean Section. R. G. Douglas and R. Landesman.—p. 422.
Gynecologic Surgery in the Elderly with Special Reference to Risks and Results. F. D. Zeman and A. M. Davids.—p. 440.
Pregnancy and Kyphoscoliotic Heart Disease. C. L. Mendelson.—p. 457.
*Application of Silver Carbonate Stain for Diagnosis of Uterine Cancer by Vaginal Smear Method. H. S. Yue, G. M. Riley, N. F. Miller and K. Scharenberg.—p. 468.
Prognosis of Cardiac Patient in Pregnancy. S. Lesse.—p. 477.
Diabetes in Pregnancy. P. M. Rike and R. M. Fawcett.—p. 484.
*Aspects in Treatment of Vulvar and Cervical Carcinoma. Grace C. Donnelly and W. A. G. Bauld.—p. 494.
*Evaluation of Adjunctive Radiotherapy in Surgical Treatment of Endometrial Carcinoma. H. Speert and T. C. Peightal.—p. 502.
Perineal Dissection for Repair. A. P. Hudgins.—p. 509.
Cesarean Section for Disproportion in Multipara. L. V. Dill, T. M. Leonard and J. B. Sheffery.—p. 515.
Gonadotrophic Hormone Therapy in Man Complicated by Antihormone Formation. J. H. Leathem and A. E. Rakoff.—p. 521.
Penicillin in Secondary Infections of Advanced Cervical Malignancies. S. Di Palma and M. Schram.—p. 534.
Meprane in Treatment of Menopausal Syndrome: Evaluation of Estrogenic Efficiency and Toxicity. D. Coulton and C. W. Sewall.—p. 541.
Rapid Obstetric Analgesia by Means of Intravenous Vinbarbital Sodium. H. F. Burkons.—p. 549.
Pregnancy in Myasthenia Gravis: Review of Literature and Report of Case. L. M. Harris and G. T. Schneider.—p. 561.
Erythroblastosis Fetalis Due to Blood Type Incompatibility. J. G. Zimring.—p. 579.
Music as Diverter in Local or Spinal Anesthesia and Analgesia. E. L. Cornell.—p. 582.

**Silver Carbonate Stain for Diagnosis of Uterine Cancer.**—Yue and his associates modified the silver carbonate staining method of Hortega for staining the cellular elements of vaginal smears. They describe the details of the procedure and stress that the affinity of chromatin material for the silver stain and the usual hyperchromatic character of atypical cells combine to make this a useful stain in the diagnosis of uterine cancer by the vaginal smear method. The cytoplasmic and nuclear characteristics of cells impregnated with silver carbonate are described, and several noteworthy advantages of the technic over other conventional differential stains are listed.

**Treatment of Vulvar and Cervical Carcinoma.**—Donnelly and her associates say that a recent survey of female pelvic cancers treated at the Radium Clinic of the Montreal Maternity Hospital from 1926 to 1945, inclusive, revealed three groups which seemed of special interest: carcinoma of the vulva, carcinoma in the cervical stump and selected cases of carcinoma of the cervix treated by radiation and surgery. There were 40 cases of carcinoma of the vulva as compared with 664 cases of carcinoma of the cervix, 177 cases of carcinoma of the uterus and 185 of carcinoma of the ovary. There were 48 cases of carcinoma in a cervical stump. Although at the Radium Clinic carcinoma of the cervix was not treated surgically, there has been a small group for whom the procedure of radiation followed by surgical treatment has been used. An effort has been made to limit this method of therapy to cases of stages I and II, though a number of stage III are included. There have been 37 of these cases. Local recurrences of carcinoma of the vulva, particularly after vulvectomy, have been few, but inguinal lymph node metastases have not been infrequent. Treatment of the inguinal lymph nodes, either surgically as recommended by Taussig, or by roentgen rays, as is now being done at the authors' clinic, would appear to be important in the initial treatment of carcinoma of the vulva. Most of the true stump cases occurred so long after subtotal hysterectomy that the diagnosis of a healthy cervix at the time of operation must have been correct. More than a third of 28 patients with true stump carcinoma were known to have had bilateral oophorectomy with the subtotal hysterectomy and, therefore, could reasonably be considered to have had no ovarian tissue at the time the carcinoma developed. This fairly large percentage does not support the theory that carcinoma of the cervix is related to ovarian stimulation. There were no stage I cases of true cervical stump carcinoma, and the majority were in stages III and IV. Though it is usual to have many patients in the more advanced stages, these figures also suggest that a patient may develop a false sense of security following operation and be more prone to disregard subsequent symptoms. The survival rate has been greatly improved with radical operation after radium treatment.

**Adjunctive Radiotherapy in Endometrial Carcinoma.**—According to Speert and Peightal total hysterectomy with removal of both tubes and ovaries is the therapeutic keystone in the management of corpus cancer. Treatment by other methods, which may be dictated by the extent of the tumor or the condition of the patient, represents a compromise. The value of adjunctive radiotherapy, in the form of preoperative application of intrauterine radium or preoperative or postoperative external roentgen irradiation, remains to be established. The authors cite reports which are representative of the recent literature on the surgical treatment of endometrial carcinoma and which fail to prove the superiority of one form of adjunctive radio therapy over another, or even to demonstrate the value of any form of supplementary irradiation over hysterectomy alone. The authors have reviewed the case records of all patients treated surgically for primary carcinoma of the endometrium on the gynecologic service of the Roosevelt Hospital from 1915 to Jan. 1, 1942. Analysis of 157 surgically treated cases of carcinoma of the endometrium has shown no benefit from preoperative irradiation with intrauterine radium. The best results in the early cases and with tumors of low histologic grade were obtained by hysterectomy alone. Postoperative roentgen therapy appeared to be of value in advanced cases and possibly for tumors of high histologic grading.

### Annals of Allergy, Minneapolis

6:353-484 (July-Aug.) 1948

Histamine Derivatives with Prolonged Action. G. E. Rockwell.—p. 353.
Patterns of Allergic Sensitization. R. P. Wodehouse.—p. 358.
Beginnings of Allergy: Reminiscence. T. W. Clarke.—p. 378.
Histamine Treatment of Foreign Protein Type Reactions. H. E. Prince and R. L. Etter.—p. 386.
Clinical Evaluation of New Antihistamine Agent "Trimeton": Conjoint Study of 227 Patients. E. A. Brown.—p. 393.
Study of New Histamine Antagonist: (2-Methyl-9-Phenyl-2,3,4,9-Tetrahydro-1-Pyridindene Hydrogen Tartrate). R. Frank.—p. 398.
Clinical Experiences with Antistine. R. F. Hughes.—p. 405.
Treatment of Allergic and Other Dermatoses with Pyribenzamine Hydrochloride. Beatrice M. Kesten.—p. 408.
Bronchial Asthma Due to Ingestion of Fennel and Fennel Seed. S. B. Levy.—p. 415.
Nonreaginic Allergy. M. G. Meyer.—p. 417.
*Control of Allergy to Antirabic Vaccine. A. Slipyan.—p. 428.
Fall-Pollinating Red Berry Juniper. A. F. Wolf.—p. 431.
Eczematous Contact Dermatitis Due to Streptomycin. H. Keil and A. Trosow.—p. 435.
Bromothen and Chlorthen—5-Brom-2-Thenyl and 5-Chlor-2-Thenyl Derivatives of Ethylenediamine Group: Preliminary Report. B. B. Alperstein.—p. 439.

**Control of Allergy to Antirabic Vaccine.**—Slipyan points out that when Horak in 1939 reviewed reactions resulting from the vaccine therapy for the protection against rabies he revealed that an allergic reaction was present in 87.5 per cent of the paralytic cases and in 33 per cent of those cases in which neurologic symptoms did not develop. He also classified the reactions into six groups and advised gradual desensitization to the vaccine to prevent the allergic skin reaction. He reasoned that the prevention of the skin allergic reaction would prevent the neurologic sequels which can prove fatal. Horak's groups were the following: 1. Cases in which a generalized urticarial rash develops; these respond to epinephrine promptly. There is no mortality in this group. 2. Cases in which there are delayed reactions of the tuberculin type, which occur at the site of the injections. These are most common and not serious. 3. Cases in which reactions occur similar to those in group 2, but much more severe and frequently associated with fever, headache, nausea and generalized adenopathy. In this group paralysis is prone to develop, and caution should be used. 4. Cases in which there is simple neuritis involving the peripheral and cranial nerves, the facial nerve being the most commonly involved. The paralysis is usually transitory. 5. Dorsal lumber myelitis most often occurring during the second and third weeks of treatment, and characterized by the gradual onset of fever, weakness and terminating in paralysis, particularly of the lower extremities. The mortality rate is low in this group. 6. Paralysis of the Landry type—sudden in onset, often with high temperature, nausea and headache, girdle pains, retention of urine, insomnia and ascending paralysis. In one third of the cases, bulbar paralysis ensues and death occurs. Evidence pointing to an allergic causation of the vaccine reactions induced Slipyan to attempt inhibition of the skin reactions by diphenhydramine. He reports a case which fell into the third group of Horak's classification. He is convinced that diphenhydramine inhibited the skin allergy and so probably prevented more serious sequels. If this can be accomplished with such simple medication, the use of skin desensitization seems cumbersome and time-consuming.

## Bulletin of Johns Hopkins Hospital, Baltimore

### 83:187-278 (Sept.) 1948

*Differential Diagnosis of Tumors at the Cerebellopontile Recess. A. Gonzalez Revilla.—p. 187.
Effect of Para-Aminohippuric Acid on Sodium Thiosulfate Determinations in Renal Clearance Studies. S. R. Elliott and H. W. Scott Jr. —p. 213.
Therapeutic Evaluation of Iso-Par in Otitis Externa. J. S. Walker. —p. 225.
*Prefrontal Lobotomy for Relief of Intractable Pain. F. J. Otenasek. —p. 229.
Cardiac Mechanism During Anesthesia and Operation in Patients with Congenital Heart Disease and Cyanosis. R. F. Ziegler.—p. 237.
Observations on Effects of Folic Acid Antagonists, Folic Acid, Liver Extract and Vitamin $B_{12}$ on Embryonated Eggs: Preliminary Report. P. F. Wagley and H. R. Morgan.—p. 275.

**Tumors at Cerebellopontile Recess.**—Gonzalez Revilla says that although the diagnosis of a lesion occupying the cerebellopontile recess is relatively easy, their clinical differentiation presents a difficult problem which frequently is not solved until a microscopic examination of the pathologic specimen is undertaken. He analyzed 205 cases of tumors of the cerebellopontile recess, verified at operation at the Johns Hopkins Hospital in a period of twenty years. He gained the impression that the age of onset and duration of symptoms are the most important points in the differential diagnosis of tumors at the cerebellopontile recess. In the first two decades of life the most common tumors are the unilateral acoustic neurinomas with peripheral neurofibromatosis, the bilateral acoustic neurinomas and abscesses. The average duration of symptoms, ten years, five years and one year, respectively, helps in their differential diagnosis. Gliomas at the recess occur predominantly between 20 and 30 years of age with a duration of symptoms varying from one to three years. Between 30 and 40 years of age the unilateral acoustic neurinomas, without peripheral neurofibromatosis, and the cholesteatomas are most commonly found. The former occur in the late 30's with an average duration of symptoms of four and a half years, while the latter start to manifest themselves in the early 30's with an average duration of symptoms of seven years. The meningiomas have the same average duration of symptoms as the unilateral acoustic neurinomas, but they appear mostly between 40 and 50 years of age. After the age of 50, tumors at the cerebellopontile recess are uncommon.

**Prefrontal Lobotomy.**—Otenasek reports histories of 5 patients who were subjected to prefrontal lobotomy on account of intractable pain brought on by malignant tumors such as carcinoma of the bladder, prostate, larynx and nasal sinuses and a sarcoma of the mandible. In addition to these 5 cases there have been 6 others, of carcinoma of the kidney, the neck, breast, cervix and colon, and 1 case of a long-standing carcinoma of the nose combined with a more recent carcinoma of the prostate. One patient died of intracranial hemorrhage three days after operation; the others either are free of pain and receiving no medication or have died of their cancer. Examination of these patients after operation makes it clear that prefrontal lobotomy alters a patient's reactions to pain without materially changing his ability to feel pain. Ordinary tests of pain perception by pin prick or other methods reveal that the patient's perception of pain is unchanged. When stuck with a pin such a patient will wince, but it may be difficult to make him angry by repeatedly sticking him. Thus it is the emotional component, the reaction to pain with anxiety, discouragement and apprehension, which is counteracted by the prefrontal lobotomy. This operation relieves pain by interrupting the pathways at a psychologic rather than a physiologic level.

## Canadian Medical Association Journal, Montreal

### 59:201-306 (Sept.) 1948

Practice of Surgery in Canada. W. E. Gallie.—p. 201.
Post-Traumatic Granuloma of Bony Orbit Simulating Tumor. G. S. Ramsey, H. W. Laws, J. E. Pritchard and H. Elliott.—p. 206.
Progress in War Medicine Since 1939. L. C. Montgomery.—p. 211.
Recurring Syncope in Patients over 45 Years of Age. C. Hunter. —p. 217.
Hysterosalpingography. R. Simard and G. Fortier.—p. 220.
Anatomical Basis for Continuous Caudal and Other Forms of Regional Block in Obstetrics. J. G. P. Cleland.—p. 225.
Nutrition Survey on Nova Scotian Island. L. B. Pett and F. W. Hanley.—p. 230.
Vitamin C Content of Diets of Lower Income Toronto Families. Elizabeth C. Robertson and Margaret E. Galloway.—p. 236.
Novocain in Abdominal Surgery. H. F. P. Grafton.—p. 240.
Tocopherol (Vitamin E) Therapy in Sclerosis of Legs with Ulcer. J. F. Burgess and J. E. Pritchard.—p. 242.
Spontaneous Pneumothorax. C. E. Robinson and J. E. Walker.—p. 247.
Pterygium Colli and Allied Conditions. H. O. Foucar.—p. 251.
Kirschner Wire Fixation in Fractures of Clavicle. C. B. Ripstein. —p. 255.
Biology of Metabolic Disease in Man. I. A. Mirsky.—p. 257.

## Florida Medical Association Journal, Jacksonville

### 35:125-192 (Sept.) 1948

Medical Management of Hypertension; Review of Newer Methods of Treatment. M. Mallory Sr. and W. D. Steward.—p. 145.
War Surgery Up Front. W. C. Roberts.—p. 148.
Chronic Ulceration of Lower Leg Treated by Excision and Skin Grafting. F. H. Bowen.—p. 152.
*Influenzal Meningitis: Streptomycin Therapy; Report of 1 Case. D. F. H. Murphey.—p. 157.

**Streptomycin in Influenzal Meningitis.**—Murphey discusses the therapy of influenzal meningitis with special reference to streptomycin. He reports a 21 month old Negro girl treated successfully with streptomycin in conjunction with penicillin and sulfadiazine. The various therapeutic agents should be given in amounts sufficient to guard against the development of insensitive strains. Sulfonamide drugs are given in amounts from 1½ to 3 grains per pound (0.22 to 0.44 Gm. per kilogram) of body weight per twenty-four hours. The intravenous route may be employed at first, particularly in cases in which nausea and vomiting are a problem. The change to oral medication may be made as soon as this mode of therapy becomes feasible. The sulfonamide drugs should be continued for at least two weeks after the discontinuation of the other therapeutic agents in order to insure against recurrence. Type B specific anti-influenzal rabbit serum is administered intravenously only after laboratory verification of specific sensitivity of the offending organism. Streptomycin should be given both intrathecally and parenterally, preferably intramuscularly. The intraspinal dose should not exceed 0.1 Gm. in 5 to 10 cc. of isotonic sodium chloride solution, this amount replacing a larger amount of withdrawn spinal fluid. In smaller children the initial intrathecal dose of streptomycin may be restricted to 0.025 Gm., and subsequent doses, if needed, increased to 0.05 Gm. At least one intraspinal administration is regarded as advisable since streptomycin does not diffuse into the spinal fluid to a sufficient degree to assure an antibacterial level. Penicillin may be used on occasion as a therapeutic agent directed directly against the influenzal bacillus, or as a preventive of secondary infection by streptomycin-resistant organisms. The author discusses the toxic manifestations that may result from the administration of streptomycin by the various routes. He concludes that no one therapeutic agent now available can be counted on alone to combat meningitis due to Hemophilus influenzae.

## Journal of Thoracic Surgery, St. Louis

**17:**419-572 (Aug.) 1948

*Diagnosis and Operability of Bronchiogenic Carcinoma. J. H. Gibbon Jr., L. H. Clerf, P. A. Herbut and J. J. DeTuerk.—p. 419.
*Treatment of Inoperable Bronchiogenic Carcinoma with Methyl-Bis. E. F. Skinner, D. Carr and W. E. Denman.—p. 428.
Nonmalignant Intrathoracic Lesions Simulating Bronchiogenic Carcinoma: Report of 30 Operated Cases. L. A. Brewer III, W. M. G. Jones and F. S. Dolley.—p. 439.
Improved Method of Resection of Pulmonary Segments: Report of Technic Applied in Seventy Operations. R. H. Overholt, F. M. Woods and R. H. Betts.—p. 464.
Exploratory Thoracotomy in Management of Intrathoracic Disease. J. B. Grow, M. L. Bradford and H. W. Mahon.—p. 480.
Chronic Nonspecific Suppurative Pneumonitis: Report of 10 Cases. R. D. Kershner and W. E. Adams.—p. 495.
Pulmonary Resection for Chronic Abscess of Lung. R. R. Shaw and D. L. Paulson.—p. 514.
Pulmonary Resection for Chronic Lung Abscesses. E. M. Kent and F. S. Ashburn.—p. 523.
Closed Intrapleural Pneumonolysis: Analysis of 1,000 Consecutive Operations. J. D. Day, P. T. Chapman and E. J. O'Brien.—p. 537.
Preliminary Anterior Chondrocostectomy Combined with Closed Cavity Drainage and Posterior Thoracoplasty. E. S. Wells, S. Lake and J. Gordon.—p. 555.

**Diagnosis and Operability of Bronchiogenic Carcinoma.**—Gibbon and his associates point out that cough, pneumonitis and pain are the earliest symptoms. Cough is also the most frequent. Sputum is a frequent but not an early symptom. Other symptoms are hemoptysis, loss of weight, dyspnea and wheeze. A positive diagnosis of bronchiogenic carcinoma prior to operation depends on microscopic examination of a piece of the tumor, which can be obtained by aspiration through a needle inserted through the chest wall into those growths which are peripherally located. This method of biopsy was not employed by the authors. It involves the danger of implantation. Bronchoscopy was done in all their cases. If the tumor cannot be seen, other suggestive evidence of neoplasm is narrowing, distortion or fixation of the trachea or bronchus. In 1946 two of the authors, Gibbon and Clerf, began to use the cytologic study of bronchoscopically removed secretions, which are aspirated through a bronchoscope from the bronchus draining the region of the suspected tumor. The material is smeared on slides and is stained by the Papanicolaou technic. When secretion cannot be obtained, 2 to 5 cc. of salt solution is introduced into the bronchus and then aspirated. The salt solution is then examined by the same technic as the bronchial secretions. One hundred and eighteen consecutive cases of carcinoma of the lung have been studied by this method. Neoplastic cells were found in approximately 90 per cent of these cases. In the same group a positive biopsy was obtained by the bronchoscope in approximately 45 per cent. Neoplastic cells were found in 43 cases in which the bronchoscopic examination was completely negative. The senior author has used these diagnostic methods in 31 patients during the past fourteen months with good results. Whenever the diagnosis is certain, an exploration should be done on all patients unless there is evidence of extension of the disease beyond the hemithorax in which the tumor lies, or unless a pleural effusion exists which is bloody or contains malignant cells. The really debatable issue, concerning whether or not exploration should be done, lies in the group with nerve palsies. Involvement of the phrenic, recurrent laryngeal or sympathetic nerves indicates an infiltrating growth which has extended beyond the confines of the lung. This does not mean that the lesion cannot be removed by block dissection including the involved nerve. When the chest is opened and all tissue involved by the growth can be removed without leaving malignant tissue behind, a radical pneumonectomy should be done. The procedure which the authors have found most effective in increasing resectability has been the intrapericardial ligation of the pulmonary vessels, as proposed by Allison.

**Treatment of Bronchiogenic Carcinoma with Methyl-Bis.**—Skinner and his associates employed methyl-bis (beta-chloroethyl) amine hydrochloride in the treatment of 25 patients with bronchiogenic carcinoma. Three patients had adenocarcinoma, 5 had squamous cell carcinoma and 17 had undifferentiated cell carcinoma. Seventeen of the 25 cases are considered in this report. Patients subjected to treatment with the drug were given a well balanced diet, which included 1 quart of milk daily and one generous serving of meat, fish or eggs with each meal. Amino acids orally are prescribed if indicated, and vitamins and ferrous sulfate are given. Smoking is prohibited. A follow-up history, physical examination, complete blood count, and either fluroscopic or roentgen examination of the chest are made every two weeks. Blood transfusions are used if indicated, as the compound is rather toxic to the bone marrow. The patient is hospitalized for five days and is given 0.1 mg. of methyl-bis (beta-chloroethyl) amine hydrochloride per kilogram of body weight intravenously once daily for four days. This course can be repeated every two or three months or more often if necessary. The drug must be used immediately after it is made up in solution. The action of the drug on the cancer cells and on the bone marrow is similar to that of roentgen rays. The authors present histories of 4 representative cases and state that they believe that the proper treatment of bronchiogenic carcinoma is pneumonectomy if at all feasible. If surgical treatment is not warranted because of extension of the carcinoma or of the presence of distant metastases, than a combination of injection of the nitrogen mustard compound and roentgen therapy offers the best aid.

## Maine Medical Association Journal, Portland

**39:**217-245 (Aug.) 1948

Diphtheria. T. A. Foster.—p. 217.
Obstructing Prostate: Review of Work of Urologic Service of Maine General Hospital for 1947. C. N. Peters.—p. 218.
Surgical Diabetic: Medical Analysis of Third Series of 100 Operated Surgical Diabetics. E. R. Blaisdell.—p. 222.
Lower Bowel Cancer: Appeal for Rectal Examination Before Medication. I. M. Webber.—p. 228.
Common Diseases of Cervix and Early Diagnosis of Cancer of Cervix. T. C. Bramhall.—p. 230.
Rehabilitation of Civilian Amputee. T. A. Martin.—p. 233.

## Nebraska State Medical Journal, Lincoln

**33:**297-328 (Sept.) 1948

Opsonocytophagic Test in Brucellosis. Grace Loveland.—p. 299.
Vaginal Fistulas. R. F. Farrell.—p. 303.
Modern Results in Cleft Palate Surgery. H. N. Boyne.—p. 306.
Report of Postmortem Findings in Patients Dying in State Mental Hospital. F. H. Tanner.—p. 309.
Calcium, Phosphorus, and Phosphatase Metabolism: Review of Series of Hospital Cases from University of Nebraska College of Medicine, Omaha, Nebraska. E. J. Kirk and D. R. Jackson.—p. 314.
Dissecting Aneurysm of Aorta: Case Report. H. J. Lehnhoff.—p. 317.

## New England Journal of Medicine, Boston

**239:**317-352 (Aug. 26) 1948

Use of Vaginal Smear as Screening Test. H. L. Lombard, Margaret Middleton, S. Warren and Olive Gates.—p 317.
*Severe Hypertension with Papilledema Simulating Brain Tumor: Differential Diagnosis and Treatment. R. S. Palmer, A. F. Nyssens and J. C. White.—p. 322.
*Effectiveness of Vitamin $B_{12}$ in Combined System Disease: Rapid Regression of Neurologic Manifestations and Absence of Allergic Reactions in Patient Sensitive to Injectable Liver Extracts. L. Berk, D. Denny-Brown, M. Finland and W. B. Castle.—p. 328.
*Conditioned-Reflex Treatment of Chronic Alcoholism: Results Obtained in 2,323 Net Cases from 3,125 Admissions Over Period of Ten and a Half Years. P. O'Hollaren and F. Lemere.—p. 331.
Pregnancy Tests. S. L. Robbins.—p. 333.
Hepatoma of Liver.—p. 339.
Adenoma of Trachea, with Extension into Thyroid Gland.—p. 341.

**Hypertension with Papilledema Simulating Brain Tumor.**—Palmer and his co-workers direct attention to the similarity in symptoms, physical signs and spinal fluid findings between severe hypertension with papilledema and expanding intracranial lesions. They compare observations on 30 patients with severe hypertension and papilledema with those on 25 patients with expanding intracranial lesions and 15 patients with severe hypertension without papilledema. The differential diagnosis between severe hypertension with papilledema and an expanding intracranial lesion with coincident hypertension is discussed and illustrated by a report of 3 cases. The most important differential characteristic is the slow, steady progression of neurologic localizing signs in brain tumor. Proper evaluation depends on expert neurologic examination and sometimes on supplementary pneumograms. In the hands of the authors extensive sympathectomy has thus far been the measure that has relieved symptoms, reduced the papilledema and stayed the rapid progress to a fatal outcome that is almost uniform in patients with malignant hypertension. They suggest that denervation of the splanchnic bed abolishes or minimizes the orthostatic pressor responses and thus protects the cerebral circulation.

**Vitamin $B_{12}$ in Pernicious Anemia.**—Berk and his associates say that a crystalline substance, vitamin $B_{12}$, has recently been isolated from liver extracts and found to produce hematologic remissions in pernicious anemia. An unusual opportunity for testing the effectiveness of vitamin $B_{12}$ on the neurologic disturbance of pernicious anemia presented itself in a patient in whom acute combined systemic disease had developed while he was receiving inadequate doses of synthetic pteroylglutamic acid. The patient also had an acquired allergic sensitivity to injected liver extracts. It was of additional interest, therefore, to determine the relation of vitamin $B_{12}$ to this sensitivity. A hematologic remission and rapid improvement in the neurologic picture followed treatment with crystalline vitamin $B_{12}$. The patient, who had had severe local and systemic sensitivity reactions to purified liver extracts derived from both pork and beef, showed no reactions to vitamin $B_{12}$. Observations on this patient suggest that vitamin $B_{12}$, like the presently available injectable liver extracts, should prove effective against the neurologic as well as the hematologic manifestations of pernicious anemia. They also suggest that vitamin $B_{12}$ is not responsible for sensitivity reactions to liver extracts.

**Conditioned Reflex Treatment of Chronic Alcoholism.**—The conditioned reflex treatment of chronic alcoholism employed at the Shadel Sanitarium consists, according to O'Hollaren and Lemere, in the establishment of an aversion to the sight, taste, smell and thought of all types of alcoholic beverages. This is accomplished by repeated conditioning seances. From the middle of 1935 to the end of 1945 there were 3,125 admissions for the treatment of chronic alcoholism. These 3,125 cases represented persons from all walks of life. Social status ranged from the very rich to the very poor—from the highly trained professional man to the former inmates of state institutions. Practically every type of labor, trade and profession was represented, indicating that alcoholism is no respecter of person, class or intelligence. Types of personalities varied from the well adjusted man to the more severe type of psychoneurotic. From a statistical evaluation of 2,323 cases in which treatment was given, the authors conclude that 85 per cent of patients treated by this method will remain abstinent for six months or longer; 70 per cent will remain abstinent for a year; 60 per cent will remain abstinent for two years, and 25 per cent will remain abstinent up to ten years or longer. Adjuvant forms of therapy have been used more extensively since this survey has ended. Their ultimate value, however, has as yet not been fully determined. Factors such as age, occupational stability, marital unhappiness, nervousness, history of recurrent delirium tremens and financial indolence have a definite effect on the prognosis, either favorable or unfavorable. The treatment is of benefit and it is hoped that the conditioned reflex will be utilized more widely and combined with other forms of therapy in selected cases, since it assists therapists by helping the patient remain abstinent while a program of personality and environmental adjustment is carried out.

## New York State Journal of Medicine, New York

48:1871-1982 (Sept. 1) 1948

*Porokeratosis of Mibelli. L. P. Barker, W. Huber and E. S. Hallinger Jr.—p. 1909.
Syphilitic Interstitial Keratitis: Report of 103 Cases. T. N. Graham, H. H. Romaine and R. H. Rulison.—p. 1916.
*Case of Yaws in New York City. C. F. Post and C. Sheard Jr.—p 1920.
Use of Placebos in Local Therapy of Skin Diseases. E. W. Abramowitz.—p. 1927.
Pigmented Basal Cell Epithelioma. A. C. Cipollaro, W. Sachs and A. Brodey.—p. 1931.
Removal of Tattoo Marks. C. Lerner.—p. 1937.
Prodromal Symptom of Coronary Occlusion. R. E. Winter.—p. 1940.
Anesthesia in Thoracic Surgery with Special Reference to Surgery of Esophagus. S. S. Lyons.—p. 1943.
Role of Thephorin in Allergic Disorders. H. H. Gelfand.—p. 1947.

**Porokeratosis of Mibelli.**—Barker and his co-workers report 1 case of porokeratosis of Mibelli of eleven years' duration in a girl aged 15. For the succeeding twelve years her condition has been observed and treated at irregular intervals. The clinical and pathologic observations, from early adolescence through first pregnancy to the manifestation of characteristic lesions in a normal infant son of the patient, emphasized the chronic and hereditary aspects of the disease. A possible endocrine relationship is suggested by the rapid extension of the eruption during puberty and its recession during pregnancy. The four characteristic types of lesions of porokeratosis—i. e., plaquelike lesions, follicular keratoses, dome-shaped, papular and nodular hyperkeratoses and verrucous lesions—were originally presented, but the predominating plaquelike lesions were seen to develop from both the follicular and the papular lesions. This would indicate that the follicular and papular are the primary lesions and the plaquelike are the ultimate lesions. Vitamin A therapy, massive thyroid therapy, ultraviolet and roentgen treatment, as well as the local use of keratolytics, were equally unsatisfactory. Serial sections of biopsies taken from the lesions at various intervals revealed hyperkeratosis, parakeratosis and acanthosis; a striking degree of porokeratosis with apparent extension of the abnormal keratinization to the deep coil gland acini; plumelike columns of nucleated horny cells ("cornoid lamellae"); conical areas of peculiar alteration of epidermal cells in association with the emergence of coil glands; a complete or relative absence of hair follicles and sebaceous glands, and a striking degree of inflammatory reaction in the cutis with an associated tendency toward fibrosis. One may well be dealing in this case with an entity which belongs in a group with Darrier's disease and other diseases which represent possible dermatoses of a delayed nevoid origin.

**Yaws in New York City.**—Post and Sheard report 1 case of yaws in a Negro boy aged 14 whose parents were born in Martinique, French West Indies, and came to the United States six years before the birth of the patient and his twin brother. At the age of 1 year both boys were sent to Martinique to live with their paternal grandmother, and rejoined their mother in New York three months before the admission of the patient to Presbyterian Hospital. Three months before returning to the United States the patient noticed a pinhead-sized papule on the outer aspect of the left ankle. At the time the children entered the United States the lesion was still of insignificant proportions. The patient was hospitalized because the initial lesion on the leg had developed into a painful ulcer and because of general secondary eruption on favorite sites for the disease including the face, palms and soles. On the face there were numerous frambesiform lesions from 10 to 20 mm. across. The serologic reactions were positive. Dark field examinations of frambesiform lesions were positive for spirochetes morphologically indistinguishable from Treponema pallidum. The diagnosis was established on the basis of history, clinical appearance and dark field and serologic examinations. The entire background and course of the infection followed recognized descriptions of yaws. A good clinical response was obtained with a total dose of 5,600,000 units of penicillin given in fourteen days. Spirochetes disappeared from the lesion in approximately the same length of time noted by other observers. Healing of the mother yaw was delayed because of exuberant granulation tissue and active secondary infection. Martinique is one of the known endemic areas in the West Indies, but West Indies immigration data indicate that cases of frambesia will occur rarely in the United States.

## Pediatrics, Springfield, Ill.

2:147-238 (Aug.) 1948

Psychotherapeutic Role of the Pediatrician. M. J. E. Senn.—p. 147.
Paranatal Factors Affecting Adjustment in Childhood. S. S. Stevenson.—p. 154.
*Para-Aminobenzoic Acid in Treatment of Rocky Mountain Spotted Fever: Report of Use in 17 Cases. S. Ross, P. A. McLendon and H. J. Davis.—p. 163.
Treatment of Tetanus: Report of 2 Cases with Critical Comment on New Therapeutic Resources. R. C. Harris, T. F. McDermott and F. L. Montreuil.—p. 175.
Fracture of Anterior Spine of Ilium: Report of 4 Cases and Discussion of Treatment. J. R. Gallagher.—p. 186.
*Poliomyelitis in Families Attacked by Disease: II. The Presence, Appearance and Persistence of Neutralizing Antibodies. H. A. Wenner and W. A. Tanner.—p. 190.
Guidance in Maternal and Infant Care Two Months Before and After Birth of First-Born. A. S. Clay.—p. 200.

**Para-Aminobenzoic Acid in Rocky Mountain Spotted Fever.**—After citing a previous report of 8 cases of spotted fever in which treatment was with para-aminobenzoic acid, Ross and his associates say that since then they have treated

9 additional cases. All of the 17 patients recovered. Both the morbidity and degree of toxicity were decreased. The earlier the initiation of para-aminobenzoic acid therapy, the better the response. Favorable therapeutic results can probably be expected if the administration of the drug is started before the seventh day. The optimal time for initiating treatment is during the first four days after the onset of the disease. There is no definite linear or curvilinear correlation between dosage and blood concentration. On the average, a dose of 0.9 Gm. per kilogram of body weight in twenty-four hours in a two hour divided dosage schedule was found to be satisfactory in children. Para-aminobenzoic acid causes few toxic manifestations.

**Neutralizing Antibodies in Families with Poliomyelitis Patients.**—Wenner and Tanner pointed out in a previous paper that whenever poliomyelitis appears in certain households all the children, and sometimes adult members, have poliomyelitis. Frequently the disease is so mild that its existence can be determined only by finding poliomyelitis virus in the stool, or, as is less readily the case, in the oropharynx. If one considers the differences in clinical response among all the members in a family in which poliomyelitis virus is widely seeded, the question arises concerning the appearance and persistence of neutralizing antibodies in these patients. In 1946 members of households were sampled to delineate the distribution of poliomyelitis virus within family units in which poliomyelitis appeared. Several members in these family units were selected for inclusion in the present study. Five of the 6 patients studied had poliomyelitis, and the sixth was a familial contact. It was found that neutralizing antibodies do appear in the serums of patients convalescent from poliomyelitis. Neutralizing antibodies, as a rule, appeared during the first ten days of illness. There is little if any fall in titer during the ensuing year. It was also evident that in some patients ill with poliomyelitis the neutralizing antibody does not reach a high level. The authors cite observations on a paralyzed patient to prove this.

## Radiology, Syracuse, N. Y.

### **51**:155-296 (Aug.) 1948

Roentgen Therapy of Carcinoma of Female Urethra and Vulva. F. Buschke and S. T. Cantril.—p. 155.
Carcinoma of Endometrium: Measurements of the Radiation Distribution Around Various Multiple Capsule Applications of Radium in Irregular Uteri. J. F. Nolan and J. P. Steele.—p. 166.
Radiation Therapy of Malignant Tumors of Testis: Long-Range Statistical Analysis with Review of Literature. T. Leucutia, W. A. Evans Jr. and J. C. Cook.—p. 177.
Treatment of Deep-Seated Malignant Tumors with Multiple-Port Technic Simulating Rotation Therapy. I. I. Kaplan and S. I. Etkin.—p. 188.
Rotation Therapy: Theory and Clinical Applications. S. J. Hawley.—p. 205.
Calcareous Pancreatitis. B. S. Epstein and I. Isaacs.—p. 214.
*Diffuse Pancreatitis Calcification: Analysis of 6 Cases. R. J. Reeves and F. T. Moran.—p. 219.
Iodinated Organic Compounds as Contrast Media for Radiographic Diagnoses: IX. Experimental Studies on Visualization of Biliary Tract. G. E. Jones, A. L. Grohowski, H. D. Robertson and others.—p. 225.
X-Ray Therapy of Boeck's Sarcoid. Charlotte P. Donlan.—p. 237.
Unilateral Ureteral Edema Complicating Radium Therapy of Carcinoma of Cervix: Case Report. W. Goux.—p. 241.
Carcinoma of Colon Simulating Carcinoma of Stomach: Report of 2 Cases. J. C. Katterjohn.—p. 245.
Kaposi's Disease: Report of Case with Unusual Visceral Manifestations. K. H. Seagrave.—p. 248.
Report of Case of Hydrometrocolpos—Congenital Dilatation of Female Genital Tract. F. R. Schell.—p. 252.
*Calcification of Ascending Aorta as Sign of Syphilitic Aortitis. R. S. Leighton.—p. 257.
Hydronephrosis Causing Displacement of Splenic Flexure. J. O. Nolan.—p. 260.

**Diffuse Pancreatic Calcification.**—Reeves and Moran say that recently there have come to their attention several cases presenting diagnostic problems in which the finding of disseminated calcification by the roentgenologist served to confirm the impression of pancreatic disease. They present brief histories of 6 patients with diffuse pancreatic calcification One of the patients was a man, aged 52, and another was a child of 4. The ages of the other 4 patients were between 29 and 33 years. The chief complaint in the 5 adult patients was recurrent abdominal pain of over two years' duration. Two patients gave histories of heavy consumption of alcohol and a third had previous cholelithiasis; in the others the causation was not apparent. The epigastric pain, which is usually intermittent, may be accompanied by nausea and vomiting, loss of weight, glycosuria, steatorrhea and occasionally jaundice. Diabetes mellitus is present in about one half of the cases with diffuse calcification, depending on the extent of islet damage. Lymphatic and ascending spread of infection, stasis, and regurgitation from the biliary tract may be factors contributing to the development of pancreatic calcification. The diagnosis can be made easily with the aid of roentgenography. On a roentgenogram of the abdomen the calcium can be seen to conform to the pattern of the pancreas. Involvement may be limited to the head, tail or body. When not so diffuse, the calcification may present a problem in differential diagnosis. In such cases a lateral roentgenogram is of considerable assistance. Cholecystography or pyelography may be necessary to rule out gallstones and stones in the kidney. Surgical treatment includes removal of localized concretions, partial and complete pancreatectomy and celiac ganglionectomy for relief of pain.

**Calcification of Ascending Aorta in Syphilitic Aortitis.**—Leighton investigated the serology and clinical cardiac findings in several cases showing calcification in the ascending aorta on routine admission chest roentgenograms. These patients were found to have positive Wassermann reactions and in 1 case definite aortic insufficiency. Calcification of the ascending aorta was detected in 9 of 18 cases of syphilitic aortitis without aneurysm, proved at necropsy. There were 39 cases in which the diagnosis of syphilitic aortitis had been made at the University Hospital or the Minneapolis General Hospital. Of these, 21 showed the calcification in question. In 4 of the 21 there were aneurysms of the aorta; the remaining 17 cases, or 43 per cent of the total number, showed calcification. Of the total number 66 per cent had positive Wassermann reactions. For the purpose of control, four hundred roentgenograms of the chest were examined. These were consecutive cases drawn from a routine file. Calcification of the ascending aorta was found in 2 cases in this control group, an incidence of 0.5 per cent.

## Southern Medical Journal, Birmingham, Ala.

### **41**:761-860 (Sept.) 1948. Partial Index

Value of Radical Operation for Carcinoma of Penis. P. B. Hudson, J. F. Cason and W. W. Scott.—p. 761.
Selection of Treatment in Advanced Carcinoma of Rectum: Improvement in Surgical Technic. R. L. Clark Jr.—p. 765.
Large Ovarian Cyst: Case Report. J. W. Nixon and W. A. Wichern Jr.—p. 774.
Extragenital Granuloma Venereum: Report of 6 Cases of Lip, Oral and Cutaneous Involvement with Review of Literature. C. B. Hanna and H. R. Pratt-Thomas.—p. 776.
Pseudoxanthoma Elasticum as Disseminated Disease. S. T. R. Revell Jr. and T. N. Carey.—p. 782.
Removal of Orbital Tumor Through Inferior Route with Kuhnt-Szymanowski Repair of Ectropion. A. Callahan.—p. 790.
Pediatrics: Changing Concepts and Responsibilities in Practice. W. W. Quillian.—p. 793.
Pediatric Proctology. C. G. Mentzer.—p. 798.
Observations on Pre-Eclampsia, Eclampsia and Hypertensive Vascular Disease in Pregnancy. R. A. Ross, F. B. Carter, S. S. Lambeth and R. N. Creadick.—p. 803.
Some Aspects of Habitual Abortion. E. Delfs and G. E. S. Jones.—p. 809.
Study of 710 Complete Lacerations Following Central Episiotomy. D. F. Kaltreider and D. McC. Dixon.—p. 814.
*Vinbarbital Sodium for Obstetric Amnesia, Analgesia and Anesthesia: Report of 3,000 Cases. M. S. Lewis and J. B. Boddie Jr.—p. 820.
Saddle Block Anesthesia for Delivery: Report of 1,000 Cases. C. L. Jorgensen, J. H. Graves and J. E. Savage.—p. 830.
Mortality of Appendical Perforation. E. S. Stafford and H. W. Scott Jr.—p. 834.
Value of Toxicologic Examinations in Postmortem Investigation. H. C. Freimuth.—p. 838.

**Vinbarbital Sodium in Obstetrics.**—Vinbarbital sodium is sodium-5-ethyl-5-(1-methyl-1-butenyl) barbiturate. Lewis and Boddie review observations on 3,000 cases in which they used this substance for the induction of amnesia, analgesia and anesthesia during labor. Two thousand, four hundred and forty-four received vinbarbital sodium orally in combination with scopolamine and, in addition, vinbarbital sodium intravenously for the completion of labor. The average dose was 9 grains (0.59 Gm.) and 10 grains (0.65 Gm.) intravenously. Spontaneous delivery occurred in 1,475, or 51 per cent. Of the operative deliveries, 1,331, or 86.4 per cent, were elective outlet forceps; 144 were breech extractions; 54 were midforcep deliveries, and 7 were versions. Of the 2,978 infants born alive, 80.9 per cent breathed and cried spontaneously; 12.6 per cent were slightly asphyxiated, and required only carbon dioxide and oxygen for resuscitation; 5.4 per cent were moderately asphyxiated, and required tracheal catheterization in addition to carbon dioxide and oxygen; 0.9 per cent were greatly asphyxiated, and required tubbing in addition to the aforementioned procedures. Vinbarbital sodium appeared to have no effect on the duration of labor. After the intravenous administration of vinbarbital sodium, the uterine contractions were accelerated and dilatation progressed rapidly in the majority of cases. It was equally effective in spontaneous and operative deliveries. The "screaming" parturient who is nearing the end of her labor can be rapidly and effectively calmed with intravenous administration of vinbarbital sodium. Mild to moderate degrees of restlessness occurred in 23.4 per cent. All were promptly controlled by intravenous administration of additional vinbarbital sodium. Complete amnesia was obtained in 70 per cent of all patients who received vinbarbital orally with scopolamine. Complete amnesia was obtained in 99 per cent after intravenous administration of vinbarbital sodium. The incidence of postpartum hemorrhage was not increased. The majority of patients slept soundly for one to eighteen hours following delivery. All expressed a desire for the same method of analgesia and anesthesia for their future deliveries. The results obtained indicated that vinbarbital sodium is a most satisfactory agent for the induction of obstetric amnesia, analgesia and anesthesia.

## Surgery, Gynecology and Obstetrics, Chicago

### 87:257-384 (Sept.) 1948

Evolution and Treatment of Tuberculosis of Hip. I. Ponseti.—p. 257.
Portacaval Anastomosis. A. H. Blakemore.—p. 277.
Physiology of Fecal Continence. E. A. Gaston.—p. 280.
*Surgery in Bleeding Peptic Ulcer: Urgent Operation and Principle of Exclusion. R. Warren and T. H. Lanman.—p. 291.
Routine Use of Operative Cholangiography. P. F. Partington and M. D. Sachs.—p. 299.
Atraumatic Low Thigh Amputation: Further Modification of and Experiences with Technic. F. Pearl.—p. 308.
Experimental Approach to Problem of Increasing Blood Supply of Lungs: Preliminary Observations on Use of Plastics. E. S. Hurwitt. —p. 313.
*Celiac Syndrome: VII. Therapy of Meconium Ileus; Report of 8 Cases with Review of Literature. R. B. Hiatt and P. E. Wilson.—p. 317.
Carcinoma of Bladder with Bone Metastases: Report of 8 Cases. H. L. Kretschmer and J. H. McDonald.—p. 328.
Place of Surgery in Emergency Treatment of Acute Massive, Upper Gastrointestinal Hemorrhage. S. O. Hoerr, J. E. Dunphy and S. J. Gray.—p. 338.
Five Year End-Results of Irradiation Therapy of Cancer of Cervix Uteri at Memorial Hospital. E. W. Munnell and A. Brunschwig. —p. 343.

**Surgery in Bleeding Peptic Ulcer.**—Warren and Lanman say that under current methods of conservative treatment, 1 or 2 of every 20 patients admitted with massive hemorrhage from peptic ulcer will die. These patients establish a need for surgery in the treatment of bleeding peptic ulcer. The mortality following surgical treatment seems to be directly dependent on the degree of exsanguination at the time of operation. The authors have found it useful to separate operations done during different phases of exsanguination into three categories; namely, emergency, urgent and elective. Of the 54 patients with bleeding from peptic ulcers observed by the authors, 29 had massive hemorrhage; the erythrocyte count was less than 3,000,000. In 10 of 20 who bled rapidly, the hemorrhage continued or, having stopped, it recurred. Four of these 10 were over 45 years of age and were operated on. Their postoperative courses were satisfactory and there were no deaths. One of these 4 patients operated on had a small duodenal ulcer of the anterior wall. A subtotal gastric resection with excision of the duodenal ulcer was performed. In the other 3 cases the ulcers were of the posterior penetrating variety and had eroded large arteries. Each ulcer was treated by exclusion. Since they presented three different problems in technical management which call for exclusion rather than excision, they are reported in detail. The authors stress early "urgent" operation for all patients with massive hemorrhage from peptic ulcer who are over 45 years and in whom the hemorrhage persists after forty-eight hours following admission to the hospital or, having stopped, recommences. Subtotal gastrectomy with removal of the lower two thirds of the stomach, including the pylorus, should be the surgical plan for these patients. In those patients in whom the ulcer is technically difficult to remove, a subtotal gastrectomy with exclusion, but not removal, of the ulcer is advocated. In patients with a large inflammatory mass involving pylorus and duodenum, a two stage subtotal gastrectomy as described by McKittrick should be done.

**Celiac Syndrome and Meconium Ileus.**—Hiatt and Wilson summarize all the previously reported and 15 hitherto unreported cases of association of meconium ileus with pancreatic cystic fibrosis. Eight patients among the total of 26 have been admitted to Babies Hospital in New York during the past two years. These 8 cases are described. The removal of obstructing meconium was accomplished by irrigation through an ileostomy wound and milking out of bulky masses. In 5 cases there was an association volvulus of a loop of ileum, presumed to result from excessive writhing of elongated and hypertrophied coils of small gut proximal to the obstructing inspissated meconium. In 4 of these cases the volvulus was corrected by simple unwinding. In all 8 cases associated cystic fibrosis of the pancreas existed. The authors believe that pancreatic insufficiency underlies all instances of meconium ileus. The history of pancreatic fibrosis or of meconium ileus in a sibling supports the preoperative diagnosis of meconium ileus in a newborn infant with intestinal obstruction. Of the 5 children surviving operation, only 1 has contracted chronic pulmonary disease; up to the present three children have developed normally. Since children with fibrocystic disease of the pancreas require a high vitamin intake, particularly the vitamins of the fat-soluble group, these children were given high doses of vitamins and continue to receive them. To compensate for absence of pancreatic function, pancreatin was given. The special diet, the added vitamins and the pancreatin will always be required by the children, for the pancreas is not expected to resume function and the intolerance to fats will remain. At the present time, twenty-six months after operation in the first 2 infants surviving and fifteen months postoperatively in the third survivor, these 3 children are alive and well.

## Virginia Medical Monthly, Richmond

### 75:435-490 (Sept.) 1948

Use of Early Rising and Early Ambulation Following Surgical Operations. H. C. Lee.—p. 435.
Recent Trends in Obstetrics. B. D. Jones Jr.—p. 444.
*Use of Vitamin E in Menopausal Syndrome. H. E. Ferguson.—p. 447.
Significance of Paralysis of the Larynx and Its Surgical Correction in Bilateral Cases. F. D. Woodward.—p. 449.
Psychosomatic Medicine. J. F. Williams.—p. 452.

**Vitamin E in Menopausal Syndrome.**—Ferguson says that although hormones are extremely helpful if used correctly they can produce undesirable reactions. In searching the literature the author found Christy's report, which discusses the possibilities of vitamin E in menopausal problems, and the work of Hain, a British writer, on the study of vitamin E in the control of flushes as contrasted to the use of estrogens. The 66 patients treated by the author were chosen because they could be relied on in giving accurate data. A preparation containing 5 mg. of alpha-tocopherol was given twice daily, after meals, by mouth for six weeks and then once daily until discontinued. In the stubborn cases vitamin E was administered also once every week by intramuscular injection until the symptoms began to abate, and then the injections were discontinued and only the oral therapy was used. Occasionally the injections had to be reinstituted. In one group of 26 patients, 22 obtained complete relief in five to eight months, while the other 4 obtained no relief from vitamin E therapy, but did get some from estrogenic therapy. In the second group of 40 patients 37 received complete relief in five to eight months, 1 after twelve months, and the other 2 received no relief from either vitamin E or estrogenic therapy. The author believes that vitamin E has demonstrated its effectiveness, although its mode of action is not understood as yet. It does not induce carcinogenic cellular action, which is sometimes thought to be aggravated by estrogenic hormones.

## FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

### Biochemical Journal, London

**42:**481-640 (No. 4) 1948. **Partial Index**

Preparation and Antibacterial Action of Compounds Structurally Related to Glutamic Acid. Their Application in Microbiologic Determination of Small Quantities of Glutamine. J. A. Roper and H. McIlwain.—p. 485.
Distribution of Acid-Soluble Phosphates in Fatty Liver. A. H. Ennor and L. A. Stocken.—p. 549.
Estimation of Creatine. A. H. Ennor and L. A. Stocken.—p. 557.
Estimation of Suramin in Plasma. J. C. Gage, F. L. Rose and Mary Scott.—p. 574.
Sexual Differences in Storage and Metabolism of Iron. E. M. Widdowson and R. A. McCance.—p. 577.
Biochemistry of Bacterial Toxins. Marjorie G. Macfarlane.—p. 587.
Hydrochloric Acid Production by Isolated Gastric Mucosa. R. E. Davies.—p. 609.
Production of Ulcers in Isolated Frog Gastric Mucosa. R. E. Davies and Norah M. Longmuir.—p. 621

### British Journal of Industrial Medicine, London

**5:**107-174 (July) 1948

Disabled Persons (Employment) Act, 1944: Some Medical Implications. W. Taylor.—p. 107.
Poisoning by Methyl Mercury Compounds. A. Ahlmark.—p. 117.
Pneumoconiosis of Coal-Miners: Study of the Disease After Exposure to Dust has Ceased. Alice Stewart, Idris Davies, Lynette Dowsett and others.—p. 120.
*Health of Plumbago Workers in Ceylon. W. L. P. Dassanayake.—p. 141.
*Diatomaceous Earth Silicosis. E. C. Vigliani and G. Mottura.—p. 148.

**Health of Plumbago Workers.**—Dassanayake says that Ceylon plumbago is considered indispensable for the manufacture of crucibles for metallurgical use. It is also used for paints, pencils and lubricants and in the electrocarbon industries. In 1945 the wages board for the plumbago trade directed the Ceylon Commissioner of Labor to inquire into the health of plumbago workers. Plumbago is found in deposits between solid granite rock. With the exception of six mines, all are worked within 100 feet of the surface. The three best managed mines are worked from 500 to 1,500 feet below the pit head. In these modern machinery and electricity are used. To prevent a dust hazard, the "wet system" is used in various work processes. Lung disease is rare among underground miners. Fifty persons who had worked for over ten years as underground miners were examined roentgenologically and roentgenograms in 4 persons showed diffuse fibrosis of the lungs. The general health of persons employed in plumbago mining is satisfactory. Sixty-two persons employed in plumbago curing sheds, where there is a greater dust hazard, were examined clinically and roentgenologically. Clinically, only 33 persons showed normal lungs. Roentgenologically, 51 persons showed abnormalities varying from fine striation to gross disease. Lung abnormalities seem to increase with increasing length of service in plumbago curing. The workers incur a considerable dust hazard in comparison with the miners in the plumbago mining industry. No protective measures are used by the plumbago curers to safeguard them from the dust hazard.

**Diatomaceous Earth Silicosis.**—According to Vigliani and Mottura, diatomaceous earth or diatomite is used for a great variety of industrial purposes, including dynamite, refractory bricks, filters and as an insulating material. Tripoli is valuable for polishing metals and precious stones. The authors have observed cases of advanced silicosis caused by inhalation of diatomite dust among workers employed in the manufacture of filter candles. Workers in two factories making filter candles (basically similar to Chamberland and Berkefeld candles) who had worked in the turning department for more than one year were given roentgen and physical examinations in 1944, and from then on once a year. Out of 20 workers roentgenologically examined in the two factories, 13 were silicotic; of these, 7 were in an advanced stage and 1 had open tuberculosis. From 1944 to date, 2 workers have died, one of silicotuberculosis and the other of silicosis; several became incapacitated and were obliged to leave work; 6 were pensioned. The most important features of the ignited diatomite dust silicosis appear to be: (1) rapid development and severe course of the silicosis; (2) a tendency to general wasting in the advanced stages of the disease; (3) tendency to spontaneous pneumothorax, owing to the presence of numerous emphysematous subpleural blebs, especially in the apex, and (4) absence of a typical nodular stage as seen in classical simple silicosis. The fibrosis set up by diatomaceous earth seems more diffuse than nodular. The reason for the difference between the mild silicosis observed among the crude diatomite workers and the malignant silicosis observed among the ignited diatomite workers lies in the fact that the ignition at 1250 C. transforms the amorphous silicon dioxide of the crude diatomite earth into microcrystalline cristobalite.

### British Medical Journal, London

**2:**365-408 (Aug. 21) 1948

*Tubercles of Choroid. R. S. Illingworth and T. Wright.—p. 365.
Occupational Skin Lesions Due to Pitch and Tar. P. Ross.—p. 369.
Observations on Tuberculous Meningitis in Childhood: with Special Reference to Early Diagnosis. W. S. Craig.—p. 374.
*Stainless Steel Wire for Closing Abdominal Incisions and for Repair of Hernia. A. L. Abel and A. H. Hunt.—p. 379.
"Mushroom" Poisoning Due to Amanita Phalloides. D. Lewes.—p. 383.
Treatment of Genu Valgum: Discarded Iron. H. A. Brittain.—p. 385.
Case of Skin Sensitization to Streptomycin. C. Stringfellow.—p. 387.

**Tubercles of Choroid.**—Illingworth and Wright report 60 patients aged less than 14, 42 with miliary tuberculosis with or without meningitis and 18 with tuberculous meningitis. Choroidal tubercles were observed in 25 (60 per cent) of the first group and in only 1 patient of the second group, in which there was no miliary spread. Of 5 adult patients with miliary tuberculosis with meningitis, choroidal tubercles were observed in 3. Choroidal tubercles are therefore of great diagnostic value in cases of miliary tuberculosis; they may establish a definite diagnosis before a roentgenogram of the chest or a lumbar puncture has been performed. In 9 cases necropsy revealed miliary tubercles which had not been detected by roentgenograms of the chest. In tuberculous meningitis miliary spread can be excluded only at necropsy. In no cases were choroidal tubercles observed merely as a terminal phenomenon. In 20 patients with choroidal tubercles well defined and definite changes were observed in these tubercles. As time passes the margin of the tubercles becomes more definite, the tubercle enlarges, the center becomes paler and the tubercle and the surrounding area become stippled with pigment. In the final stage there is a parchment-white scar with heavy surrounding pigmentation and paling of the adjacent choroid. In 8 patients in whom in spite of prolonged treatment with streptomycin the choroidal turbercles failed to progress beyond the early intermediate stage, death occurred in 5 and in the remaining 3 the response to treatment was unsatisfactory. The 3 patients in whom the tubercles progressed to the final or healed stage were apparently cured. Choroidal tubercles were observed in 4 additional cases of tuberculosis in children in which there was no meningitis or evidence of miliary spread. In 1 of these cases a solitary choroidal tubercle was seen to pass through all the stages to the final or healed stage. It seems possible that careful examination of the fundi of all patients with primary tuberculosis will, in some, reveal choroidal tubercles.

***Stainless Steel Wire for Abdominal Incisions.***—In Abel and Hunt's ten years' experience the use of stainless steel wire makes the closure of large abdominal incisions a clean procedure which is completely secure. It eliminates the risk of postoperative disruption and herniation. No such complication has occurred in over 2,500 consecutive major laparotomies, a large number of which were for malignant disease of the alimentary canal. Its use has been accompanied by a considerable reduction in the incidence of infection. Skin scars are neater. Early postoperative ambulatory treatment may be practiced with great confidence, and with the concomitant benefits of a reduced incidence of distension and of pulmonary and vascular complications. The use of stainless steel darns in the repair of hernial orifices has simplified the operation. Any hernia, however large the defect, can be repaired by this method. The closure seems to be more secure than by any other method. There was no recurrence in over 300 cases in nearly five years. The strong, smooth, fine, innocuous filament of stainless steel is the best material for the closure and reinforcement of fibromuscular planes. It must be used correctly, without tension, without strangulation of the tissues and without kinking of the wire.

## Journal of Bone and Joint Surgery, London

### 30-B:405-578 (Aug.) 1948

Infections of Hand. J. B. London, J. D. Minnero and J. C. Scott. —p. 409.
Traumatic Dislocation of Hip Joint: Review of 101 Dislocations. J. R. Armstrong.—p. 430.
Denervation of Hip Joint in Osteoarthritis. J. D. Mulder.—p. 446.
Treatment of Pathologic Dislocation of Hip Joint after Suppurative Arthritis in Infants. A. F. Bryson.—p. 449.
Fracture-Subluxations of Shoulder. T. J. Fairbank.—p. 454.
Dislocation and Fracture-Dislocation of Pelvis. F. W. Holdsworth. —p. 461.
*Causalgia: Diagnosis and Treatment. C. H. Cullen.—p. 467.
Positive Pressure in Arthrodesis of Knee Joint. J. C. Charnley.—p. 478.
Conservative Treatment of Sciatic Pain by Immobilization in Plaster Jacket. F. C. Durbin.—p. 487.
Bone Lengthening. F. G. Allan.—p. 490.
Arthrodesis of Ankle Joint: Experiences with Transfibular Approach. J. C. Adams.—p. 506.
Nailing the Femoral Neck by Simple Method. V. J. Kinsella.—p. 512.

**Causalgia.**—Cullen's report is based on 24 cases. He is of the opinion that the typical syndrome of causalgia develops only when the median or internal popliteal nerves are injured. He doubts whether pain associated with injury in the peripheral part of the limb, or of the brachial plexus, should be classed as causalgia. Procaine hydrochloride block of the sympathetic ganglions is important as a diagnostic method. Twenty-three injections of procaine hydrochloride were made in 17 of the author's patients. Of these, 8 were treated subsequently by sympathectomy and 9 by radiotherapy. No permanent benefit from procaine hydrochloride injection was observed. After sympathectomy, 7 patients were relieved of all pain at the end of one year; 1 complained of occasional pain in the ring finger. The improvement in these was maintained for two years after operation. Roentgen therapy alone was used in 7 patients, 3 with brachial plexus lesions and 4 with median and other peripheral nerve lesions. Two of the 3 patients with brachial plexus lesions were almost free from pain after two years and suffered pain only on excitement or exposure to cold. One showed no definite improvement and has since been treated by tractotomy. In all 4 patients with lesion of the median or peripheral nerves there was steady improvement over two years. The result was less satisfactory after roentgen therapy than after sympathectomy. While these patients were able to carry on with their work, they were still liable to mild recurrences of pain as the result of excitement, loud noises or exposure to cold. Of the remaining 9 patients, 1 was treated by alcohol injections with incomplete relief. Of 3 who were treated by neurolysis with periarterial sympathectomy in 2 and arterectomy in 1, only 1 showed slow improvement over two years which did not appear to be related to the operation. Four patients with mild causalgia received simple physical therapy including wax baths, galvanism and massage. Physical therapeutic treatment is not tolerated in cases of severe causalgia.

## Journal of Hygiene, London

### 46:117-238 (July) 1948. Partial Index

Combined Pertussis-Diphtheria Prophylactic Antigens: Experimental Study to Determine the Specific Immunizing Value of These Antigens Used in Combination. D. Ordman and E. Grasset.—p. 117.
Some Observations on Reaction Between Horse Serum and Pool of Rabbit Antihorse Serum: I. Relative Inhibitory Effect of Excess Antigen and Excess Antiserum. G. R. E. Naylor.—p. 129.
Food-Borne Outbreak of Streptococcal Infection. P. C. Reynell.—p. 148.
Outbreak of Gastro-Enteritis Due to Salmonella Derby. Rose Mushin. —p. 151.
Outbreak of Typhoid Fever in Middle East. E. S. Anderson and H: G. H. Richards.—p. 164.
Submarine Escape Breathing Air. K. W. Donald, W. M. Davidson and W. O. Shelford.—p. 176.
Formation of Cyanogen Chloride During Chlorination of Certain Liquids: Toxicity of Such Liquids to Fish. L. A. Allen, N. Blezard and A. B. Wheatland.—p. 184.
Absorption of Fat During Consumption of Diets Rich in Whole-Grain and White Breads. A. R. P. Walker.—p. 194.
Dietary and Clinical Survey of Pregnant Women with Particular Reference to Toxemia of Pregnancy. W. Hobson.—p. 198.

## Journal of Mental Science, London

### 94:513-700 (July) 1948. Partial Index

Post-Hypoglycemic Encephalopathy in Sakel's Insulin Treatment. A. M. Spencer.—p. 513.
Posterior Cuts in Prefrontal Leukotomy: Clinico-Pathological Study. A. Meyer and T. McLardy.—p. 555.
Psychiatric Review of 50 Cases of Gunshot Wounds Self-Inflicted. R. F. Fidler.—p. 565.
Results of Treatment of Thousand Cases of Schizophrenia. L. A. Finiefs. —p. 575.
Observations in Electrically-Produced Epileptic Convulsions. Part I. Tonic Neck and Labyrinthine Reflexes upon the Eyes. R. Klein and D. F. Early.—p. 581.
Periodic Catatonia. J. S. B. Lindsay.—p. 590.
Misinterpretation of Mirror Image of Self in Presenile Cerebral Atrophy. R. E. Hemphill.—p. 603.
Ephedrine Treatment of Nocturnal Enuresis. G. de M. Rudolf.—p. 629.
Lung Abscess Following Electro-Convulsive Therapy: Description of Case. H. Conway and H. Osmond.—p. 653.

## Lancet, London

### 2:241-280 (Aug. 14) 1948

Aftercare of the Aged Sick. E. N. Thomson and M. Curran.—p. 241.
Some Medical Uses of Polythene with Special Reference to Venoclysis in Infants. J. W. Farquhar and I. C. Lewis.—p. 244.
Pulmonary Tuberculosis in the Old. F. J. Hebbert.—p. 247.
*Refrigerated Autogenous Skin Grafting: Review of 50 Cases. A. E. Flatt.—p. 249.
Student Health Service. R. E. Verney and R. F. Robertson.—p. 251.
Acute Benign Dry Pleurisy: Six Cases in Hospital Staff. J. D. Gray and F. S. Carter.—p. 254.
Preparation of Streptococcal Extracts for Lancefield Grouping. W. R. Maxted.—p. 255.
Renal Tumour and Persistent Fever: Report of Case. L. Zádor.—p. 256.

**Refrigerated Autogenous Skin Grafting.**—Flatt reports results of fifty applications of refrigerated grafts stored and applied to both "clean" and infected granulating areas. The fifty applications of skin were performed on 17 patients. Thirty applications were made on 10 patients for thermal, electric or roentgen ray burns; fourteen applications were made on 4 patients for failed Thiersch grafts; five applications were made in 2 patients for traumatic full thickness skin loss and one application was made in a patient with varicose ulcer. It was found that the shorter times of storage yielded a higher percentage take, but even the longer times of storage yielded a satisfactory take. The skin was usually used for grafting within the first three weeks of storage, but the occasional use of skin stored after this period proved satisfactory. The thinner the graft the more rapidly it became vascularized from beneath. The thicker split skin grafts usually separated into two layers, a lower adherent layer and an upper layer which separated with the tulle gras on which the graft was spread. The results tend to substantiate the views of other writers that refrigerated grafts possess an increased vitality. The patients have in many instances been saved repeated operations and had their hospital stay shortened by having skin available at the times at which the recipient area became suitable for grafting.

## Tubercle, London

### 29:169-196 (Aug.) 1948

What is Silicosis? P. Heffernan.—p. 169.
*Differential Diagnosis of Tuberculous Cervical Adenitis. H. Bailey. —p. 174.

**Differential Diagnosis of Tuberculous Cervical Adenitis.**—Bailey mentions the various conditions that have been referred to him as tuberculous cervical adenitis. These included: branchial cyst, acquired branchial fistula, deep cavernous hemangioma of the neck, thyroglossal cyst, adenoma of the pyramidal lobe of the thyroid, thyroglossal fistula, dermoid cyst in Burns' space, Hodgkin's disease, carotid body tumor, enlargements of the preauricular lymph node, mixed parotid tumor, preauricular ulcer, tumors of the submaxillary salivary gland, syphilis, actinomycosis, swellings of the subclavicular fossa, staphylococcic infections and streptococcic and other pyogenic infections. There were always cases of cervical lymphadenopathy that have subsided under expectant treatment. A proportion of these, especially those in children, probably never were tuberculous. The astute clinician, when seeing a child with subacute inflammation of the cervical lymph nodes, will realize that the infection may or may not be tuberculous and will reexamine the child at weekly or fortnightly intervals. Many will perform a patch test early in the period of watchful observation, and when the test is positive it is unlikely that a doubtful mass is nontuberculous.

## Acta Medica Scandinavica, Stockholm

### **131:**1-94 (July 12) 1948. Partial Index

Nephrectomy in Hypertension and Unilateral Renal Disorder: Survey and 2 Cases; 1 Resulting in Decreasing Blood-Pressure but Persisting Tendency to Angiospastic Encephalopathy. P. Effersøe.—p. 10.

*On Treatment of Actinomycosis with Sulfonamide Drugs and Penicillin: Report of Successfully Treated Case of Pulmonary Actinomycosis. C. A. Adamson and G. Hagerman.—p. 23.

*Erythema Exudativum Multiforme: Clinical Picture. H. J. Ustvedt —p. 32.

Mediastinitis Anterior Chronica. A. J. M. Lohman.—p. 51.

Titration of Serum with Mercuric Chloride Especially in Liver Affection. T. Grinsted.—p. 66.

Vitamin Deficiencies After Prolonged Treatment with Penicillin. L. Mosonyi and Elisabeth Oblatt.—p. 82.

**Sulfonamide Drugs and Penicillin in Actinomycosis.**—Adamson and Hagerman review a small number of cases of pulmonary actinomycosis with improvement or cure following treatment with sulfonamide drugs which have been described in the literature. Of later years, some few cases of actinomycosis treated with penicillin have been recorded. The authors report a man, aged 40, who in March 1945 presented symptoms of acute pneumonia, which did not respond to treatment with sulfonamide drugs. Roentgenograms of the chest taken in March, April and May showed slight improvement of exudation and parenchymatous lesions. He was discharged from the hospital in May, but continued to complain of pain in the chest and was again hospitalized in July with a tender swelling at the right side of the chest, which failed to yield fluid on puncture. Later it increased in size and contained pus and granular debris. Actinomycosis was suspected, but could not be verified. Treatment with penicillin was begun. In November he was again hospitalized, because a sinus had developed, and now actinomyces were demonstrated in the material taken from the sinus tract. The patient was treated with penicillin, 250,000 units daily given over four months, and with 8 to 10 Gm. of a sulfonamide combination preparation and with 25 Gm. of urea per day. The effect of this treatment was dramatic. The patient was still perfectly well eighteen months after termination of treatment and failed to show indications of recurrence.

**Erythema Exudativum Multiforme: Clinical Picture.**—Ustvedt reports the first part of an extensive study on erythema exudativum multiforme. The material includes 219 cases of erythema exudativum multiforme; 80 presented at the same time lesions of the mucous membranes, and 55 showed in addition a typical erythema multiforme, and also tender nodules on the legs resembling those seen in erythema nodosum. The age distribution curve shows a maximum in the ages from 20 to 40 years. The males were in the majority up to 20 years; the females were decidedly in the majority in the other age groups. In cases in which there were lesions of the mucous membrane there were about as many females as males, whereas in the group with combined erythema multiforme and erythema nodosum 95 per cent were females. In 22 per cent one or more recurrences had taken place, more often in cases with lesions of the mucous membranes (40 per cent), than in the combined group (2 per cent). Prodromal symptoms, chiefly pains in the joints, on the contrary were more frequently found in the latter group. In 3 cases the clinical picture of primary, atypical pneumonia was observed. The stomatitis corresponds to what is seen in aphthous stomatitis. In cases in which there were lesions of the mucous membranes the eye defects always corresponded to catarrhal, bullous or purulent conjunctivitis, whereas in the group with combined erythema multiforme and erythema nodosum episcleritis was found in the half of the cases with ocular lesions. Transitory proteinuria was noted in 16 cases; acute hemorrhagic nephritis in 1. In 7 cases symptoms of the nervous system appeared, with 1 case of polyradiculoneuritis and 1 case of choriomeningitis. One case had a fatal issue. The sedimentation rate showed in 23 of 179 cases values above 100 mm. after one hour. High figures were especially characteristic of the cases with combined erythema nodosum and erythema multiforme.

## Deutsche medizinische Wochenschrift, Stuttgart

### **73:**265-304 (July 16) 1948. Partial Index

Pernicious Insulinism: Report on 2 Cases Operated on for Insuloma. G. Katsch.—p. 271.

Spontaneous Hypoglycemia and Island Tumor of Pancreas. E. Derra and C. Schmidt.—p. 274.

*Fatal Hypoglycemia in Diabetic Patients as Sequel of Chronic Malnutrition. H. Wendt and R. Arnold.—p. 278.

*Desoxycorticosterone Acetate in Treatment of Adrenal Insufficiency: Results and Methods. F. Heni.—p. 282.

Virilizing Tumor of Adrenal Cortex Containing Bone Marrow Demonstrated by Means of Pneumoperitoneum. M. Gülzow.—p. 287.

Cushing's Syndrome Caused by Primary Carcinoma of Adrenal Cortex. H. Pickert.—p. 289.

**Fatal Hypoglycemia in Diabetes Resulting from Malnutrition.**—Wendt and Arnold report 1 case and review observations on 4 other cases of diabetes in which there was exposure to shortage of insulin and to severe malnutrition. The patient whose case is reported died of hypoglycemic coma and necropsy revealed atrophy of the pancreas with cirrhosis and extensive atrophy of the island apparatus, bronchopneumonia in both lower lobes and complete disappearance of fat tissue from the adrenal cortex. All of the patients had severe diabetes and were treated with insulin for years. The general condition, particularly the state of nutrition, was extremely poor; weight deficiency was as much as 21.6 Kg. (48 pounds); some presented severe hunger edema. All had severe attacks of hypoglycemia. Although the infusion of dextrose increased the blood sugar, it did not counteract the coma. All of these cases were observed during the period when starvation was greatest. The authors point out that the hypoglycemia attacks observed in these severely undernourished diabetic patients resemble the conditions which Houssay and his associates observed in dogs with pancreatic diabetes in which the hypophysis had been removed. The hypoglycemia attacks are caused by disturbances in the diencephalohypophysial system, which in turn are the result of inanition. The adrenals also seem to be involved.

**Desoxycorticosterone Acetate in Adrenal Insufficiency.**—Heni in reviewing the present status of treatment of adrenal insufficiency points out that the different substances that have been isolated from the adrenal cortex can be classed into three groups: 1. Desoxycorticosterone and its acetate influence chiefly the electrolyte and water exchanges. 2. The so-called corticosterones influence chiefly the carbohydrate metabolism, and the 17-hydroxycorticosterone exerts an effect on the elimination of sodium chloride. The author is concerned with therapeutic application of desoxycorticosterone, the only substance available to him for treatment of adrenal insufficiency. He reviews observations on 21 patients and cites experiences of other observers. The dosage, the intramuscular injection, the perlingual administration and particularly the subcutaneous implantation of tablets are evaluated. The author used the latter method on 8 patients and found that the effect of the implantation of 100 mg. tablets persisted for seven to twelve months, averaging about eight months. The progressing adrenal insufficiency gradually involves other incretory organs by way of the hypophysis. Thus treatment of adrenal insufficiency should not be limited to substitutional adrenal cortex therapy. It is advisable to supplement it by administration of extracts of the anterior hypophysis and at least temporarily by estrogenic or androgenic substances.

## Klinische Wochenschrift, Heidelberg

### **26:**417-448 (July 15) 1948. Partial Index

*Relationship Between Hypernephroma and Hypertension and Function of Kidney. H. Bohn.—p. 417.

Amino Acid Contents of Blood Serum with Particular Consideration of Albumin Deficiency. G. Herrnring and S. Borelli.—p. 420.

Infection of Young Erythrocytes by Plasmodium Vivax: First Report. E. Thonnard-Neumann and W. Stahlmann.—p. 423.

Short Report on Possibility of Control of Artificial Hypoprothrombinemia with Glycocoll-Ascorbic Acid-Calcium Preparation ("Finestal"). T. Halse.—p. 425.

**Hypernephroma, Hypertension and Renal Function.**—Bohn reports 57 patients between the ages of 42 and 82 with hypernephroma, 23 of whom presented hypertension. In 8 patients the hypertension was of the renal type, while 15 presented the picture of essential hypertension. In both groups those with and those without hypertension, the majority of patients were between the ages of 55 and 65 years. No causal relationship could be demonstrated between nephroma and hypertension, and that applies to essential as well as to renal hypertension. Renal hypertension did not occur in patients with extensive unilateral or bilateral tumors in the kidneys. Hypertension did not occur even in the 3 patients with additional bilateral occlusion of the veins of the kidney by tumor tissue. Six patients presented the so-called "extrarenal kidney syndrome"; extensive metastasis to the liver was observed in all of them. A close biochemic relationship between the albumin of the liver and of the kidneys may be considered responsible for the occurrence of immunobiologic reactions, which are directed simultaneously against liver and kidneys resulting in a "serous inflammation" of the vascular apparatus of these organs. The adrenals likewise may play a part in these vascular lesions, which may involve large areas of the terminal blood vessels. An isolated disturbance of secretion of urine was demonstrated in 8 patients by Volhard's test. The largest half-hour amount was between 100 and 150 cc.; the four hour amount was around 600 cc. After the surgical removal of the tumor the test revealed normal conditions. Sixteen patients presented between 5 and 12 per cent eosinophils; 3 patients had mucous or muco-ulcerous colic; 2 patients had a so-called acute tumorous endocarditis; 1 patient aged 60 had acute polyarthritis for the first time, and 1 patient aged 67 had acute diffuse glomerulonephritis. These various immunobiologic syndromes may result from the absorption of albumin from the tumor tissue and from the tissues of the organs affected by pressure damage.

## Lyon Chirurgical, Paris

### 43:129-256 (March-April) 1948. Partial Index

Results of Conservative Surgery in Arteritis. P. Wertheimer and R. Gautier.—p. 129.
Progress in Vascular Surgery. R. Leriche.—p. 134.
Postoperative Adhesive Peritonitis. A. Massardier.—p. 154.
*Late Results of Unilateral Splanchnicectomy in Treatment of States of Hypotonia of Biliary Ducts. P. Mallet-Guy and M. Jaubert de Beaujeu.—p. 157.

**Splanchnicectomy for Biliary Hypotonia.**—Mallet-Guy and Jaubert de Beaujeu performed splanchnicectomy on 92 patients, 75 women and 17 men between the ages of 16 and 74, 33 of whom had gallbladder atony, 21 essential diffuse hypotonia of the bile ducts, 16 hypotonia of the common bile duct and 22 hypotonia of the common bile duct associated with chronic pancreatitis. Diagnosis of gallbladder atony was established by clinical observation and cholecystography, or by manometric and roentgen ray control during operation. Hypotonia of the common bile duct as a functional disturbance was demonstrated by cholangiography and by manometric recordings during operation. Hypotonia of the common bile duct may be an isolated disturbance or may be associated with hypotonia of the gallbladder, with cholelithiasis or with disease of the cystic ducts or even with the existence of calculi in the choledochus. Hypotonia of the common bile duct was observed during repeated operation in patients with recurrence of symptoms after cholecystectomy. This hypotonia appeared to be the only causative factor in postoperative pain and cholangitis. Hypotonia of the biliary ducts is frequently associated with chronic pancreatitis; this association presents the main indication for splanchnicectomy. Follow-up for one to six years was carried out in 88 of the authors' cases. Results were satisfactory in 81. There were 7 failures and 1 postoperative death. The fatal case was due to the additional resection of the external horn of the semilunar ganglion, which affected the vagal conduction and induced secondary paralysis of the stomach and duodenum.

## Prensa Médica Argentina, Buenos Aires

### 35:1577-1620 (Aug. 13) 1948. Partial Index

*Late Postoperative Pulmonary Atelectasis. Syndrome of Late Spastic Atelectasis of Left Inferior Lobe in Association with Acute Segmented Dilatation of Colon. M. R. Castex and E. S. Mazzei.—p. 1577.

**Late Postoperative Pulmonary Atelectasis.**—The clinical form of pulmonary atelectasis described by the authors has not been previously reported in the literature. The subjects of this report, a woman and a man, were subjected to a cholecystectomy for biliary lithiasis. Gas anesthesia was used. The postoperative stage was uneventful, up to the ninth and the fifteenth day, respectively, after the operation, when clinical symptoms of acute segmental dilatation of the colon appeared in association with clinical and roentgen symptoms of atelectasis of the inferior lobe of the left lung. Treatment consisted of orthosympathetic depressor drugs and cathartics. The authors believe that this form of atelectasis is due to bronchial spasm of segmental colonic orthosympathetic reflex origin which disappears when the colonic disorder and the consequent bronchial spasm subside.

## Presse Médicale, Paris

### 56:605-616 (Sept. 4) 1948. Partial Index

Schwannoma of Pancreas, L. Cornil, R. de Vernejoul, H. Gastaut and R. Muratore.—p. 605.
*Frequency of Ovarian Metastasis from Cancer of Breast. A. Sicard.—p. 606.
Results of Vaccination Against Diphtheria in Spain. R. Rendu.—p. 606.

**Ovarian Metastasis From Cancer of Breast.**—Sicard reports 38 cases of cancer of the breast, in women between the ages of 35 and 72, 11 of whom had ovarian metastases. Castration was performed on 23 of the 38 patients after amputation of the breast. None of them presented any signs of metastasis, but in 2 metastasis was present in the ovaries, which appeared entirely normal. The remaining 15 patients presented early or late metastases of bones, lymph nodes or viscera after amputation of the breast or in the absence of any local treatment of the tumor. Nine of them presented metastases of the ovaries. In 3 the metastasis was demonstrated on surgical intervention, but in 6 only on microscopic examination of the specimen. In 2 patients castration had been performed by irradiation resulting in menopause, but the atrophied ovaries presented cancerous cells. The high incidence of metastases of the ovaries from cancer of the breast suggests advisability of surgical castration rather than of castration by irradiation, and preferably a hysterectomy which, besides its hormonal role, may suppress a latent cancerous localization in a large number of cases.

## Revista Médica de Chile, Santiago

### 76:315-372 (June) 1948. Partial Index

*Cardiopathy in Chagas's Disease in Central Zone of Chile: Preliminary Report. T. Pizzi, J. Valls and R. Florenzano.—p. 315.
*Venous Thrombosis: Review of 161 Cases. L. Figueroa G.—p. 341.

**Cardiopathy in Chagas's Disease.**—Pizzi and collaborators carried out clinical and electrocardiographic observations on 411 Chilean patients with chronic trypanosomiasis cruzi in the central rural zone of Chile and in 66 normal persons of the same zone. They found that the general health of the patients was good. Cardiac insufficiency was rare. When it appeared it was mild and was caused by factors other than Chagas's disease. The capacity for work was normal. Electrocardiographic changes consisted mainly of an auriculoventricular block and right bundle branch block, of Wilson's type, they were present in 43 of 397 electrocardiograms. Clinical studies and laboratory tests failed to show pathogenetic factors other than trypanosoma as cause of the alterations. Rural, chronic trypanosomiasis in Chile is benign, and of slow evolution. It causes mild myocardial lesions in a small percentage of the patients.

**Venous Thrombosis.**—Figueroa G. analyzed the records of 161 patients with thrombophlebitis or phlebothrombosis who were observed in the last six years in the principal hospitals of Santiago. Surgical trauma, delivery and abortion were the most frequent causal factors. Thrombosis was unilateral in 111 cases, in 86 of which only the left leg was involved. Pulmonary embolism was a complication in 9 of 13 cases with phlebothrombosis and in 14 of 148 cases with thrombophlebitis. The embolus was solitary in 13 of the 14 cases complicating thrombophlebitis and multiple in 1 case of thrombophlebitis and in 9 cases of phlebothrombosis. In all cases of embolism the accident occurred during the first two weeks after the appearance of venous thrombosis. In more than half the cases the embolus was located at the base of the left lung. Anesthesia of the lumbar sympathetic is the best treatment for thrombophlebitis, whereas anticoagulants and vein ligature is the treatment of choice for phlebothrombosis.

# Book Notices

**Hemostatic Agents with Particular Reference to Thrombin, Fibrinogen and Absorbable Cellulose.** By Walter H. Seegers, M.S., Ph. D., Professor of Physiology, Wayne University College of Medicine, Detroit, and Elwood A. Sharp, M.D., Sc.D., Director, Department of Clinical Investigation, Parke, Davis and Company, Detroit. Fabrikoid. Price, $4.75. Pp. 131, with 27 illustrations. Charles C Thomas, 301-327 E. Lawrence Ave., Springfield, Illinois; Blackwell Scientific Publications, Ltd., 49 Broad St., Oxford, England; The Ryerson Press, 299 Queen St., W., Toronto 2, 1948.

The technic of hemostasis has been revolutionized, within less than a decade, by the development of concentrated stable thrombin preparations and of absorbable materials such as oxidized cotton, fibrin foam and gelatin foam. Many aspects of the subject are compactly reviewed in this small book.

The opening chapter gives an interesting survey of the chemical reactions involved in the process of blood clotting. This highly controversial topic is given as unified a treatment as possible from the point of view of Dr. Seegers, whose contributions in this field in recent years have been second to none. The bibliography covers the literature only through the year 1946. Therefore, some major advances occurring in 1947 are necessarily unmentioned: for instance, the work of Seegers himself, and others, on the plasma accelerator factor (Ac-globulin), and the work of Ferry and Morrison and of Hawn and Porter on the structure of the fibrin clot. It is regettable that, presumably through delay in publication, the gap between the information in this chapter and the present state of our knowledge should be as large as it is.

Chapters II, III and IV cover the process of topical hemostasis with thrombin alone, the chemical properties of fibrinogen and its clinical use. Chapter V treats at length of oxidized cellulose, and chapter VI gives a brief discussion of fibrin foam and gelatin sponge. The discussion of thrombin deals almost entirely with thrombin from bovine blood, although the extensive use of human thrombin, from blood collected by the Red Cross during the war, is briefly mentioned. The chapter on fibrinogen treats topics not directly related to the problem of hemostasis, such as skin grafting and the use of fibrinogen and thrombin in the pyelolithotomy operation. Nerve suture by fibrin fixation is briefly discussed.

The book can be recommended as a useful presentation of modern technics in hemostasis and of their background in the chemistry of blood clotting.

**Total Protein, Globulin and Albumin in Lumbar Fluid in Cryptogenic Epilepsy: A Clinical Methodological Study.** By Richard Eeg-Olofsson. Acta psychiatrica et neurologica Supplementum 50. Paper. Pp. 192, with 6 illustrations. Stockholm, 1948.

The author has measured the total protein and the globulin-albumin quotients in 133 patients with epilepsy (21 of these "symptomatic") and in 67 "control" patients. The data are presented in detail in fifteen tables and four charts, and discussed intelligently against a background of more than 200 references. The method of Izikowitz was employed. In 5.5 per cent of 110 patients with cryptogenic epilepsy, the total protein was above the normal limit. The globulin-albumin quotient was below normal in 10 per cent. This abnormal ratio was due both to unusually low values for globulin and high values for albumin. Measurements on successive occasions might produce different values. Thus, a subnormal quotient was found at least once in 17 per cent of 110 patients. However, abnormalities could not be related to the time interval after a seizure, to the frequency of attacks, to the duration of the epilepsy or to electroencephalographic foci. Although some of the case histories give evidence of the presence of pathologic changes in the brain, the author seems to suggest an etiologic role for the protein by proposing the term "epilepsia hyperproteinorrhachia." The low globulin-albumin ratios are not due to low values of total protein, nor are they confined to cryptogenic cases. They may be related to alterations in the permeability of the blood–spinal fluid barrier.

This is a painstaking though somewhat disconnected presentation of a mass of clinical and laboratory data. The author has difficulty in deciding whether certain cases should be classed as symptomatic or cryptogenic. Apparently he does not consider that a given case may be the result of both genetic and acquired factors.

**Everyday Miracle: Through Intimate and Sympathetic Observation of Animals, a Brilliant Scientist Illuminates the Miracle of All Life.** By Gustav Eckstein. Cloth. Price, $2.75. Pp. 235. Harper & Brothers, 49 E. 33d St., New York 16, 1948.

If there is another book which even remotely approaches the character of this one, this reviewer has not seen it. It is a presentation of observations which appear haphazard and disconnected and yet fall into a pattern. There are twenty chapters, each with a theme, such as time, hunger, life, exercise, hearing, fight, sleep, posture, sex and death. For each chapter the author presents observations on animals, such as a cat that knows Monday, storks that talk Egyptian, the smell of twelve million headless codfish and their severed heads, a rabbit which adopted a family and a spotty dog that walks on two feet. The presentation of careful scientific observations is given life and interest by the author's vivid imagination, his whimsical fantasy, and an occasional touch of mordant humor, such as the opening sentence of one chapter: "I was told this by a pretty woman, but I believe it."

This book should take its place among the classics of interpretive medical writing for lay consumption. It is comparable to Cannon's "Wisdom of the Body" and Sherman's "Science of Nutrition." It is the kind of book that a doctor can pick up for relaxation. At the same time, he will learn much about animals which he has never had occasion to know before. Not least among the charms of this book is its style, which is always fresh and original, sometimes jerky and teeming with surprise twists which keep the reader's interest constantly alert.

**Medullary Nailing of Küntscher.** By Lorenz Böhler, M.D., Director of the Hospital for Accidents in Vienna. First English edition revised by the Author. Translated from the Eleventh German edition by Hans Tretter, M.D., Surgeon in Charge of the New Jersey Manufacturers Hospital, Trenton, N. J. Cloth. Price, $7. Pp. 386, with 1261 illustrations. Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, 1948.

This book, originally published in German as the third volume of Böhler's work on fractures, is most welcome. Medullary nailing has not been extensively used in this country, nor has there been much of a tendency to add it to our armamentarium. Böhler presents the subject objectively and in a comprehensive manner. The treatise is based on a study of hundreds of cases and many thousands of roentgenograms. He states clearly that the method has a narrow field of application. In his own words, "It is evident that closed medullary nailing is suited chiefly for transverse fractures of the femur in the middle third and for localized osteitis fibrosa cystica, whereas in other fractures it frequently entails more disadvantages than advantages." He emphatically is opposed to its use by open operation and presents conclusive evidence to disclaim the original contention of Küntscher that the nail is a stimulus to formation of callus.

In spite of the rather narrow field which Bohler claims for the Küntscher nail he presents a complete system of treatment for every long bone with copious illustrative roentgenograms and apparatus and careful outlines of methods. Much of this he condemns after a thorough exposition. In a sense this book is more of a treatise than a text, dealing as it does with a method of treatment not widely accepted and limited by the author of the book to relatively few situations.

As an addition to the literature of fracture surgery, the book is "must" reading for those who use or intend to use this method as part of their armamentarium. It goes a long way toward defining the field of usefulness of this new method and will help a great deal in preventing too wide a swing of the pendulum, as usually occurs with any new method. Dr. Böhler is to be congratulated on a fine presentation and Dr. Hans Tretter for his excellent translation.

**A Handbook of Charting for Student Nurses.** By Alice L. Price, R.N., B.S., Director of Nurses, Alton Memorial Hospital, Alton, Ill. Third edition. Loose-Leaf. Paper. Price, $3.75. Pp. 386, with illustrations. C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3, 1948.

This book is a carefully prepared guide for student nurses, giving detailed information on methods of hospital charting. It gives instruction on lettering and illustrates charting procedure in relation to each of the forms that are commonly employed in a complete clinical record. Practice pages are likewise included and more can readily be added, since the material is conveniently arranged in looseleaf form. The book also contains general rules for charting, a list of standard abbreviations and symbols, a table of foods and diet classification, and a comprehensive list of terms commonly used in charting. In schools of nursing education the handbook will serve as a valuable teaching aid.

**Cirrosis de higado, estadios previos: Histofisiologia normal y patológica del higado, pruebas funcionales y tratamiento.** Por le Dr. Luis Bernardo Rabinovich. Prólogo por el Dr. Andrés López Garcia. Premio "Facultad de ciencias médicas." Paper. Price, 40 pesos. Pp. 707, with illustrations. Editorial Cayetano Vergara, Loria 60, Buenos Aires, 1948.

This monograph on cirrhosis of the liver is based, in addition to an exhaustive review of the literature, on observations on 41 patients treated conservatively and on the study of twenty-seven biopsies obtained in course of operations performed for various lesions of the biliary tract.

The author begins in a systematic manner with the embryology, anatomy, histology and physiology of the liver and proceeds to describe the pathologic changes characteristic for cirrhosis, its various stages, pathogenesis, experimental findings, interrelations with the spleen and prodromal symptoms. Case histories are followed by a description of clinical and laboratory findings, hepatic function tests in general and those considered characteristic for cirrhosis, such as Takata-Ara, Weltmann and Hanger reactions. The last part of the book deals with complications of cirrhosis, its classification and medical and surgical treatment.

The author differentiates two stages of cirrhosis, (1) the stage of evolution and (2) the so-called cicatricial cirrhosis which represents the final, irreversible phase of the condition. All hepatic function tests are of little practical value in the recognition of early stages of the lesion or so-called precirrhosis, which, however, can be detected in biopsies. Therefore the author makes a strong plea for this procedure in contradistinction to a liver puncture, which is considered hazardous. A specimen for biopsy can be obtained in course of other surgical interventions or by means of a special laparoscopy. Only in this manner can precirrhosis be detected and the responsible factors possibly eliminated.

Of 707 pages, the case reports occupy not less than 218. The question suggests itself whether a tabulation of the results and a brief synopsis would not serve the same purpose.

Recent advances in the surgical treatment of cirrhosis, such as the portocaval shunt or its modifications, are not mentioned by the author.

The book is illustrated with black and white photomicrographs and diagrams. The index is inadequate. The book is well written, well designed and fills its purpose well.

**Let's Tell the Truth About Sex.** By Howard Whitman. Cloth. Price, $2.50. Pp. 242. Pellegrini & Cudahy, Inc., 65 5th Ave., New York 3; George J. McLeod, Ltd., Toronto, Canadá, 1948.

The title establishes the theme of this book. It is a fine, straightforward piece of work, starting in the first chapter with emphasis on what everyone knows but few acknowledge, that there is nothing wrong with sex but there is a great deal wrong with the attitude of human beings toward this vital function. Just how necessary it is to establish the concept that sex is respectable is indicated by the necessity for devoting three chapters to a justification of early sex teaching and two more to the words and sentences to be used in such teaching. After these five preliminary chapters the author devotes chapters 6 and 7 to presenting material suitable for little children and for those somewhat older. Then through three chapters he deals with special problems, such as nudity, masturbation, venereal diseases, crushes, necking and petting and "the need for sex." Marriage counseling, sex in the schools, moral issues and a final chapter entitled, "Save Sex—and Maybe Civilization, Too" complete a well rounded discussion. Particularly useful is the clarification of the so-called "Catholic opposition," which the author fairly points out is not opposition to sex instruction as such, but insistence that it be done in the home and in the church rather than in the school.

Among the many books on this subject of sex, this one can be recommended with assurance.

**The Machinery of the Body.** By Anton J. Carlson and Victor Johson. Third edition. Cloth. Price, $4.50. Pp. 639, with 220 illustrations. University of Chicago Press, 5750 Ellis Ave., Chicago 37, 1948.

This reviewer has often decried the tendency to write new textbooks which do not present a new approach to subject matter. Those remarks do not apply to this work. Although the first edition appeared twelve years ago, this edition is again a refreshing and stimulating presentation of material old to the professional physiologist, but as invigorating as if totally new. The worst criticism is the unevenness of the level of appeal. For the most part the presentation is aimed at the level of the intelligent college student. At times, however, the textual material seems most suitable for the level of the advanced seminar in physiology, except for its brevity. Perhaps this is inevitable and is not too serious. Sections in which important revisions have been made in response to new developments are blood, body defenses, emotions, cancer, and radioactive substances. The extent of treatment is necessarily brief for each subject heading, but the approach is sound and conclusions conservative. Illustrations are largely new, original and aptly applied.

**Klinische Hämatologie.** Von Dr. Hanns Fleischhacker. Cloth. Price, $19. Pp. 624, with 277 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; Wilhelm Maudrich, Spitalgasse 1B, Wien IX/2, 1948.

This is a well written textbook of hematology representing the view of the Vienna school of hematologists, corresponding to the American hematology of about fifteen to twenty years ago. The newer discoveries are however, discussed, including use of liver extract in pernicious anemia, the Rh factor, and the use of folic acid, but the literature does not reach to the use of radioactive phosphorus in polycythemia, or the more modern methods of hemoglobin determination. There is little reference to American literature after 1940, but European references after that date to 1947 are given. Unfortunately, a defect in the printing of the colored pictures makes most of them entirely useless, but some of the black and white pictures are excellent. The book contains some valuable data from the extensive material available to the author, but does not replace some of the more extensive American or British works.

**The Truth About the Stork.** By Edward F. Griffith, M.R.C.S., L.R.C.P. Cloth. Price, 6s. Pp. 136, with 59 illustrations. H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C.1, 1948.

This is another crusade against the poor old stork, emanating this time from the British Empire. The book was published in London. It is a gesture toward frankness, but the photographs of the male and female nude are from the rear. All the other illustrations are diagrams, with the exception of a few innocuous photographic fillers. Factually the book is satisfactory. The presentation is without originality and most of the drawings are relatively crude. Despite all that one hears about the shortage of paper, this book is wastefully printed. Several whole pages are devoted to illustrative drawings which contribute little or nothing, and there is considerable waste space on pages where single paragraphs or small groups of paragraphs occupy half a page and the remainder is white paper. The white space is not even utilized to give the book attractiveness.

This may be classified as a useful but not particularly attractive publication.

**Dental Education Today..** By Harlan Hoyt Horner, Secretary of the Council on Dental Education of the American Dental Association, Chicago. Cloth. Price, $6. Pp. 420. University of Chicago Press, 58th St. & Ellis Ave.; Chicago 37; Cambridge University Press, Bentley House, 200 Euston Rd., London N.W.1, 1947.

This book, which describes the present status of dental education in the United States, is based on the survey of dental schools conducted in 1942-1943 by the Council on Dental Education of the American Dental Association. First, however, it presents a historical review of the establishment and development of dental schools as well as the early attempts at standardization in this field. Prior to 1840, when the first dental school was established in the United States, the method of training was mainly preceptorial in type. In the period 1840 to 1884, twenty-nine dental schools were organized, all but eight of which have survived to the present time either under the original control or through mergers or amalgamation with other institutions. By 1895, there were forty-four dental schools in existence, while the peak of fifty-seven was reached in 1900. Twenty years later the number of schools had been reduced to forty-six, and at present forty dental schools are in operation, practically all under university control.

Since 1840, approximately one hundred and twenty-five efforts have been made to establish individual schools. The commercial schools multiplied most rapidly at the turn of the century, but as standardization progressed it soon became evident that professional education cannot be maintained at a satisfactory level if geared to a profit motive. In the dental field the last proprietary school ceased to exist in 1929.

Efforts to improve dental education were in evidence as early as 1866 through the formation of special societies and associations, many of which have survived to the present day. Actual standardization in this field did not begin until 1909, however, when the Dental Educational Council of America was formed. This agency, composed of representatives of the National Association of Dental Examiners, the National Association of Dental Faculties and the National Dental Association (now the American Dental Association), issued standards for dental schools in 1916. The first classification of dental schools was made in 1918 when thirteen were designated as class A, twenty-six as B, seven as C, and two not classified. Annual lists of approved schools were issued thereafter until 1934, when thirty-five schools had attained an A rating and three the B classification, the C listing having been discontinued in 1926.

The book contains ten chapters which describe the present organization of dental schools, physical plants, geographic distribution, brief sketches of individual schools, financial management and support, faculties, students, curriculum and methods of teaching. Auxiliary areas are also included such as graduate and postgraduate education, courses for the training of dental hygienists and dental technicians, the requirements for the approval of dental internships and residencies, the training and recognition of specialists in dental practice and dental licensing examinations. While this comprehensive report concerns primarily the field of dentistry, it will also be of great interest to schools of medicine and individual physicians, since in many respects medical education and dental education represent parallel disciplines.

**The Hospital Purchasing File.** Established 1919 as the Hospital Yearbook by the Modern Hospital Publishing Co., Inc. Twenty-Fifth edition, 1947-1948. Boards. Various pagination with illustrations. Purchasing Files, Inc., 919 N. Michigan Ave., Chicago 11, 1947.

The Hospital Purchasing File, now in its twenty-fifth edition, is an excellent reference on hospital buying. It contains an alphabetical list of manufacturers and distributors, a directory of hospital products of more than 200 pages, and a group of twenty-one manufacturers' catalogs classified on a departmental or service basis. These groups include administrative, dietary and housekeeping services, laundry, building construction and maintenance, plant operating equipment, professional services and facilities pertaining to surgery, radiology, pathology, obstetrics, anesthesia, pharmacy and other departments. A further reference section contains equipment and supply lists for hospitals of fifty, one hundred and two hundred beds and other valuable information in the planning of hospital departments and services. The book is an excellent source of information and reference for those who are concerned with the services of supply, hospital operation and maintenance.

**Cancer: Hérédite, Hormones, Substances Cancérigènes. Tome I.** Par le Docteur J. Maisin, professeur à l'Université de Louvain, Louvain. Paper. Price, 84 francs. Pp. 248. Casterman, S. A., Tournai, Belgium; Paris, 1948.

This work is divided into essentially three portions: (1) the relationship of heredity and cancer, (2) the role of hormones in cancer and (3) a discussion of carcinogenesis. Each of these subjects is discussed in its relationship to the general problem of cancer. The chapter on carcinogenesis is particularly well written and complete. A pertinent bibliography is included. The book is well written and should be of value to the physician who is desirous of acquiring information about the heredity and endocrinology of cancer and a knowledge of carcinogenesis.

**Minor Surgery.** By R. J. McNeill Love, M.S., F.R.C.S., Surgeon, Royal Northern, Mildmay Mission and Metropolitan Hospitals, London. Third edition. Cloth. Price, 22s. 6d. Pp. 430, with 221 illustrations. H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C.1, 1948.

"Minor Surgery" is a well illustrated small manual on the essentials and elementary principles of surgery. It is divided into thirteen chapters, which include discussions on examination of the patient, antisepsis and asepsis, cellulitis, hernia and minor surgical operations.

The book is written in clear simple language. Facts are accurate and convey present day teaching and opinion. Illustrations, excellent pen and ink sketches and retouched photographs, enhance the text.

The book fulfils the purpose of a guide for hospital residents and general practitioners who encounter surgical conditions only occasionally.

**l'exploration de la fonction respiratoire: Physiologie, méthode d'exploration, indications et résultats.** Par Jaques Arnaud, médécinchef du Sanatorium du Mont-Blanc, Pierre Tulou et Robert Mérigot, médecins assistants au Sanatorium du Mont-Blanc. Préface de E. Rist. Paper. Price, 425 francs. Pp. 317, with 54 illustrations. Masson & Cie, 120 Boulevard Saint-Germain, Paris $6^{e}$, 1947.

After a résumé of the physiology of respiration, the authors describe the methods available for the clinical study of general respiratory function, together with the results obtained in a variety of clinical conditions. The technic of "bronchospirometry" for studying the function of each lung separately is given in considerable detail with illustrative case histories, diagrams and tables, to define the indications and limitations of the several procedures. Specific technics are described more fully in an appendix. This volume will be most helpful to those interested in newer methods of studying respiratory function in the clinic.

**Hemolysis and Related Phenomena.** By Eric Ponder. Cloth. Price, $10. Pp. 398, with 69 illustrations. Grune & Stratton, 381 Fourth Ave., New York 16, 1948.

Students interested in hemolytic phenomena will welcome this scholarly and up to date presentation. The previous monograph by Ponder on the "Mammalian Red Cell and Properties of Hemolytic Systems" was written in 1934. The present monograph is a critical presentation reflecting not only the author's large fund of authoritative knowledge in this field but his mature thinking on some of the more controversial aspects of the subject. The monograph is not strictly a source book on the subject (although it serves this function equally well), but a critical analysis and discussion of the biophysical and biochemical aspects of the mammalian red cells and hemolytic phenomena written in a most engaging and provocative manner. Although a large body of information is concisely reviewed it is comprehensive in scope and should satisfy the most exacting needs of students in this field. The broad content of the monograph is concerned with shape changes in the erythrocyte unaccompanied and accompanied by volume changes, cytochemistry and architecture, kinetics, inhibition and acceleration of hemolysis and hemolysis in vivo. The monograph is well supplied with tables, diagrams and a critically selected current bibliography. Every student of hematology will want this outstanding contribution in his personal library.

**Indice bibliográfico da lepra 1500—1945. Volume III: Q—Z.** Organizado por Luiza Keffer, bibliotecária do Departmento de profilaxia da lepra de São Paulo. Paper. Pp. 1435-1936. Biblioteca do Departmento de profilaxia da lepra do estado de São Paulo, Caixa postal 27-B, São Paulo, 1948.

Volume III of the "Indice Bibliografico de Lepra" includes entries covering Q-Z and is the final volume of this excellent bibliography on leprosy compiled by Luiza Keffer, Librarian of the Department for the Prevention of Leprosy of the State of São Paulo. Reviews of volume I (A-H) and Volume II (I-P) will be found in THE JOURNAL, Sept. 15, 1945 and Aug. 7, 1948.

**How Life Is Handed On.** By Cyril Bibby, M.A., M.Sc., F.L.S. Cloth. Price, $2. Pp. 159, with illustrations. Emerson Books, Inc., 251 W. 19th St., New York 11, 1947.

This is a wonderful book for adolescents, to explain reproductive systems of man and beast. The style of writing is easy and direct. Illustrations are informative and ample. The book explains things as most parents wish they could, and leaves little to the child's imagination.

# Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

## ASTHMA AND CORONARY OCCLUSION

*To the Editor:*—A man, 41 years of age, has had bronchial asthma for twenty years, due in part, it seems, to chronic sinusitis. Although present the year round, it is severest from August 15 to May 15. Relief is obtained mainly by epinephrine in oil, although occasionally aminophylline is sufficient. In addition, he has a multiple allergy, the most predominant being to ragweed pollen. Acute coronary occlusion developed on July 19, with myocardial infarction but the patient is showing good recovery. Is it advisable to continue the use of the epinephrine in oil for the relief of the asthma?

M.D., Canada.

ANSWER.—The history given suggests that this patient is sensitive not only to ragweeds but to many other substances. One should suspect in this sort of case air-borne molds and household environmental substances, such as feathers, cottonseed, house dust and animal emanations. Sinusitis as a cause of asthma is usually not of primary importance in such cases. It is important that you make an accurate and complete diagnosis of the causes of this patient's condition in order to treat asthma of such long duration, i. e., eight months out of the year. This diagnosis should depend on more than cutaneous tests. The following suggestions are made for treatment during an acute episode:

1. Preparation of the patient's bedroom to remove all allergens to which the patient may be sensitive. There are patients who are sensitive to feathers only during the ragweed hay fever season or during the period when they are exposed to large amounts of other air-borne allergens. It is not unusual for patients to tolerate a certain amount of feather dust at other times of the year with little or no symptoms. Feather pillows and mattresses should therefore be covered by well made allergen-proof covers or rubber pillows and a rubber mattress, if available, should be used. House dust precautions should be carefully carried out, i. e., the removal of rugs from the floor, the avoidance of drapes and hangings in the bedroom and the use of chairs which are not upholstered. Perfumes and flowers should not be allowed in the room.

2. The use of a satisfactory pollen filter in the windows can be of help. If the patient is in an oxygen tent it is equivalent to air filtration. In fact, it is more satisfactory than most available filters.

3. If any foods have been found to be a cause of allergic symptoms, no matter how mild, they should be eliminated from the diet during the period when the patient has asthma, especially during the months when ragweed pollens are in the air.

4. Relief measures for asthma include (*a*) aminophylline, preferably by suppositories, may be used in 7½ grain (0.88 Gm.) doses, three to four times a day. Aminophylline may be given intravenously, very slowly, with observation for any untoward symptoms. The dose may vary from 3½ grains (0.52 Gm.) to 7½ grains (0.88 Gm.), depending on the tolerance of the patient, the rapidity with which the patient responds favorably to the injection and the severity of the attack. The smaller the dose the better. (*b*) Epinephrine solution 1 : 100, by inhalation with an all glass nebulizer, may be used for mild attacks. Treatment should be limited to every four hours. Epinephrine solution 1 : 1,000 may be injected carefully. It is not stated whether this patient has any hypertension. It is preferable to give the aqueous epinephrine solution subcutaneously in the minimum dose necessary for relief of symptoms, i. e., 0.2 to a maximum of 0.5 cc. every four to six hours. The ill effects of epinephrine solution given by injection, i. e., tachycardia or irregularity of rhythm or weakness and syncope, may readily be overcome if one uses a tight tourniquet distal to the point of hypodermic injection of epinephrine solution as soon as these symptoms appear. The tourniquet may be released in a minute to a few minutes with the disappearance of these symptoms and reapplied with the appearance of untoward symptoms. The absorption of epinephrine solution can thus be controlled. Untoward symptoms are unusual if the absorption is controlled for the first ten minutes. If epinephrine by injection in a dose as high as 0.5 cc. fails to give the patient relief from asthma, it must be discontinued for twenty-four to forty-eight hours and aminophylline and other measures used during that time until the patient again responds to epinephrine. Repeating the dose of epinephrine solution if the patient has failed to respond to the previous injection, unless one waits approximately forty-eight hours, may be harmful, especially in this case. (*c*) Sedation. One must make sure that the patient gets an adequate amount of sleep by the use of soporifics which are not respiratory depressants. The use of morphine or its derivatives during an attack of asthma is dangerous because of its tendency to cause depression of the respiratory center.

5. Specific treatment by a well trained specialist in allergy experienced in coseasonal treatment of pollen sensitivity and of mold sensitivity may be helpful.

## VISUAL EXERCISES

*To the Editor:*—Of what value is the Bates method of exercise and treatment given for cataract and other visual defects?

Mildred Doster, M.D., Washington, Iowa.

ANSWER.—Ophthalmologists are well aware that such treatments have their limitations and are by no means applicable to all eye defects indiscriminately. Such defects as cataracts, optic atrophy, corneal opacities and retinal lesions are not affected by such treatment. The important thing is that psychologic treatment may reconcile patients to defects, whether of the eyes, ears, legs or other parts of the body, and contribute enormously to the patient's comfort by teaching him how to become adapted to his condition. Doctors too often neglect this side of treatment. On the other hand, skilfully chosen exercises can improve visual functions. They form the basis of orthoptics. It is even possible to improve color discrimination, but impossible to cure color blindness. It is possible to teach myopic persons to make better use of their foggy vision without glasses, but not possible to reduce the myopia. It is possible to teach patients with opacities of the cornea like Aldous Huxley's to use their eyes more comfortably and contentedly, as he was taught and describes in his book. One hundred patients with cataract under competent ophthalmic supervision, as an experiment, were given treatment for one year, such as is recommended and used by various irregular practitioners. At the end of the year over 75 per cent said that they were better and wished to have the treatment continued. Tests with Snellen charts showed vision poorer in nearly every case, showing how unreliable is the patient's impression as to real visual improvement, how extremely important is the patient's subjective impression and how psychotherapy dominates successful treatment of the patient himself as distinguished from the patient's particular pathologic lesion.

## PHOTOSENSITIZATION

*To the Editor:*—A girl 8 years of age gives a history of being sensitive to light since the age of 3. Her symptoms appear in February, gradually becoming more pronounced until June or July. By the latter part of September apparently a reasonable degree of tolerance has developed, and the girl is then able to expose herself moderately without having a reaction. This child was given diphenhydramine hydrochloride ("benadryl hydrochloride") about two or three years ago. Her response to this medication was satisfactory for one season. Since then, "benadryl hydrochloride" and the other antihistaminic drugs have not produced results. This patient apparently has the ability to desensitize herself to a certain extent. Is there a method of maintaining this through the winter months?

R. S. Simenson, M.D., Manitowoc, Wis.

ANSWER.—The symptoms are not stated, but we can assume that the striking lesion is on the skin. Allergy is not the common cause of sensitiveness to light. In only a few cases has it been possible to transfer the reaction by injecting the patient's blood serum into the skin of a normal person and then demonstrating the reaction by exposure of the treated area. Such a test would be interesting here. In an excellent chapter on this subject, Urbach and Gottlieb distinguish exogenous and endogenous types of photosensitization. In occasional cases such drugs as the sulfonamide preparations or the barbiturates can lead to light reactions. Certain plants, like buckwheat and clover, can produce light reactions in animals. The topical application of sulfonamide drugs can also make the skin reactive to light in rare cases. The authors discuss the role of raw vegetables and raw meats in disturbing the metabolism of the porphyrins. Endogenous causes are more important, especially in adults. Hepatic disease is the major cause, but disintegrating tissue protein as in peptic ulcer, blood hemolysis or intestinal lesions, can also give rise to increased porphyrin in urine and stools. In this patient the diagnosis can be confirmed by exposing a small area of skin to the sun or to ultraviolet rays when the rest of the body is covered with a black cloth. For treatment, the child needs a careful and complete study to exclude the endogenous factors. Make the diet plain, avoid uncooked foods and be sure to eliminate drugs of every kind. Exposure to ultraviolet rays to maintain the tolerance through the winter can be tried, but it is not too successful.

Urbach, E., and Gottlieb, P. M.: Allergy, New York, Grune & Stratton, Inc., 1946, pp. 417-431.

## POLYARTHRITIS

*To the Editor:*—A white, female nurse, aged 26, complains of periodic low grade fever, stiffness and discomfort and swelling of fingers, hands and arms (with sensation of diffuse nodules in skin at times in her antecubital areas) which cause her to drop things at times. General malaise and tiredness occur during these episodes which recur regularly every few weeks. Her legs "feel like lead" on such occasions. Her first attack began during training four years ago with a temperature of 106 F. and swelling and pain of her right arm which lasted for two weeks and left her weak and drowsy for one week. Another sudden one, just involving the fingers, followed one year later; since then these have been recurrent. The patient has recurrent frontal headaches and some dysmenorrhea. The periods are regular and not excessive. The patient has had facial palsy since 6 weeks of age. She also has 2 brothers and 1 sister with similar history and appearance, in every case dating to infancy, when they would suddenly awake out of sleep with a shrill painful cry followed by this paralysis, which has persisted since. She had streptococcic sore throat six or seven years ago. Appendectomy was done in 1945.

The father and uncle have diabetes. A brother has heart failure.

The patient's physical examination elicited no abnormality findings except for those stated together with some coarsening of features. A pelvic examination was not done. There was no involvement of joints. The patient has had a basal metabolic rate ranging from minus 10 to minus 23 and is being given thyroid. The blood calcium is 17 to 24 mg. per hundred cubic centimeters; phosphorus, 2.92 mg.

During an attack the patient had a red blood cell count of 4,000,000 and a white blood cell count of 9,100, with 8 per cent eosinophils, 4 per cent stabs, 50 per cent segmented cells, 30 per cent lymphocytes and 8 per cent monocytes. Repeated heterophile antibody tests and undulant fever agglutination tests elicited negative reactions. Roentgenograms of the skull revealed marked hyperostosis of the frontal and parietal internal table, more marked in the anterior fossa, with excess bone density also along the base of the skull. The sella turcica bone and the humerus were normal. Biopsy of antecubital tissue was negative in result. Treatment with penicillin, streptomycin, diphenhydramine, was without effect. What are suggestions as to diagnosis and treatment? The patient has had a course of treatment for possible undulant fever. M.D., Missouri.

Answer.—This patient presents the clinical picture of recurrent, febrile polyarthritis; the most common cause of this in young persons is rheumatic fever. It would be of interest to know whether this was the cause of heart disease in the patient's brother. On the evidence available, it is not possible to exclude rheumatoid arthritis. The presence of subcutaneous nodules is characteristic of both diseases. Less common generalized diseases of the connective tissue which must be considered are lupus erythematosus disseminatus, periarteritis nodosa and dermatomyositis. The absence of cutaneous changes and hematuria and the negative biopsy render these unlikely, although the slight degree of eosinophilia is consistent with any of them. Gouty arthritis is a remote possibility.

The only observation not explained by any of these is the 17 to 24 mg. of calcium per hundred cubic centimeters of blood. Since this is one of the laboratory determinations most often found to be faulty, it should be repeated in another laboratory if possible. If it is confirmed, hyperparathyroidism must be considered and a careful history taken to exclude the possibility of vitamin D intoxication. The low basal metabolic rate is characteristic of any debilitating disease, and the hyperostosis frontalis interna is a common incidental finding.

Further studies which might be useful are: repeated determinations of serum calcium and phosphorus, serum alkaline phosphatase, serum albumin and globulin (in Boeck's sarcoid and in myeloma high serum calcium is associated with high serum globulin), urinary calcium excretion, erythrocyte sedimentation rate, response to therapeutic trial of salicylates and electrocardiographic studies.

## PERTUSSIS AND MEASLES IMMUNITY

*To the Editor:*—Please answer the following questions: 1. What is the status of human convalescent serum for pertussis? Is it effective in treatment in an active case? 2. Up to what age should infants be considered immune to measles? Below what age should human globulin not be given for exposure to measles? M.D., New York.

Answer.—1. There is not sufficient evidence to prove the value of human convalescent whooping cough serum. Moreover, pertussis convalescent serum is rarely available, but human hyperimmune serum can be obtained and is considered by many to be efficient. For passive immunity the serum should be administered as soon as possible after exposure. Human hyperimmune pertussis serum when given for treatment of whooping cough often seems to be beneficial.

2. If a mother has had measles, the disease is uncommon in her offspring before 6 months of age and is rare under 4 months. Because most adults have had measles during the first years of life there is conveyed to the infant a transient immunity which usually endures for from four to six months after birth. Therefore, it is not necessary generally to give human immune globulin prior to 4 months of age, but there is no serious objection to doing so.

## PHYSICAL ALLERGY

*To the Editor:*—A patient, age 21, unmarried, experiences intense itching of the skin all over the body immediately after a shower or tub bath, either hot or cold water. Water in different parts of the country causes the same effect. The reaction occurs during warm weather but not during cold weather. Mere dampness in the air excites itching in a mild manner. It is apparently not related to menstrual periods; however, menstrual cycles are somewhat irregular. She is somewhat obese. Blood pressure and routine laboratory tests reveal nothing noteworthy. Antihistaminics have been tried in bold dosage, without avail. Allergy to foods or pollens is absent. Please advise treatment. M.D., Alabama.

Answer.—The patient described appears to have an abnormal response to temperature change, called "physical allergy." While most of such cases of thermal hypersensitivity are due to cold and a lesser number are due to heat, a third group reacts to both cold and heat. Usually urticarial lesions accompany the phenomenon, but itching may be frequent without evident lesions. The mechanism is commonly accepted as an increased tendency to release large amounts of histamine from the tissues exposed to the thermal stimuli. Humidity aggravates the condition, because the temperature is more penetrating when the percentage of humidity is high than when the air is dry. It is not easy to understand why the syndrome does not occur in cold weather. Possibly the colder weather induces an increased tolerance.

The inquirer might try to reproduce the syndrome by exposure to cold or heat and note any blood pressure change. A decided fall in blood pressure would speak for a histamine release. The management of these cases is not easy. The antihistaminic drugs frequently fail, perhaps because of the fact that the amount of histamine liberated is too great to be combated by the amount of antihistamine drug reaching the skin sites. Several procedures are worthy of trial. One is a daily exposure to cold followed by heat. This may be in the form of an immersion of the hand and forearm in water at temperature of 50 F. for about four minutes twice daily, followed by exposing the extremities to warm water. In some patients frequent injections of small doses of histamine may result in improvement. This consists usually of histamine of 1:100,000 or 1:10,000, subcutaneously, once or twice daily. The mechainism of this is not known, although it is certain that it is not due to a production of greater histamine tolerance. Another method of approach is the use of nonspecific injections or fever therapy.

## NITROGEN DETERMINATION: NESSLER METHOD

*To the Editor:*—I have had difficulty doing a nonprotein nitrogen determination of the blood according to the Folin and Wu method. I am using a Leitz colorimeter. The values are always too high. When Nessler's solution is added the resultant mixture becomes too dark. I am using fresh solution. Please supply information.

Abraham Shedlov, M.D., Fosston, Minn.

Answer.—There are several possibilities of error in the determination of nitrogen by the Nessler method, which must be avoided if accurate results are to be obtained:

1. The Nessler's reagent must be carefully prepared and must stand undisturbed in a dark bottle until the solution has become completely clear. This usually requires three to four weeks, but the solution appears to improve with further aging. The sediment should not be disturbed in withdrawing solution, and siphoning is the preferred technic for removing solution from the stock bottle.

2. The alkalinity of the final reagent must be within the limits given in standard laboratory manuals.

3. The Nessler's solution must be added rapidly, preferably from a graduate, to a cold solution, and the two should be mixed immediately with further cooling if necessary.

4. The final solution must be sparkling clear since turbidity completely obviates photometric determination of color intensity. The simplest test for turbidity is viewing the solution through the length of the tube. In clear solutions the bottom will be clearly seen, while in turbid solutions the bottom of the tube cannot be seen.

5. The quantity of nitrogen in the sample should be between 0 and 0.1 mg. expressed as nitrogen. Quantities of nitrogen above this range are prone to give turbid solutions.

## ACETYLSALICYLIC ACID IN PREGNANCY

*To the Editor:*—Does acetylsalicylic acid act similarly to quinine during pregnancy in stimulating uterine contractions? If so, is this action likely to be encountered in equal measure throughout pregnancy, or is it more marked at certain stages of gestation? M.D., China.

Answer.—The literature apparently contains no evidence which tends to show that acetylsalicylic acid causes uterine contractions.

## RECURRENT ERYSIPELAS

*To the Editor:*—What is the latest information on treatment of recurrent erysipelas? A 52 year old man had his first attack in 1941 with reddening of the inner side of the leg and swelling of the lymph nodes on the same side. At the beginning, the attacks recurred in intervals of two weeks. Later, the periods of freedom from attacks became longer—the longest lasting up to one year. During these years the patient was advised to treat the skin of the leg by bathing with potassium permanganate solution alternating with sulfathiazole ointments. After the longest remission, of one year, he suddenly had attacks again in intervals of three to five or six weeks. Fever which accompanied these attacks responded quickly to sulfadiazine. Trial with penicillin has not brought any change. Would you advise use of streptomycin or other procedure? Roentgen treatments as well as protein therapy have been unsuccessful. The patient has athlete's foot and is constantly treated for this condition in the belief that it may be a predisposing factor. He is in perfect health otherwise, with the exception of moderately enlarged veins of both legs.

Egon E. Lustig, M.D., New York.

ANSWER.—This is a difficult therapeutic problem. The difficulty is apparently an immunologic one, the patient having a heightened susceptibility toward some organism, probably, but not necessarily, a hemolytic streptococcus. Three lines of attack should be tried, although none of them offer too great a promise of cure: 1. Foci of infection anywhere in the body should be searched for and eradicated. 2. Cultures should be made from the skin at the times of the attacks and vaccines made from these organisms. A course of vaccine injections may be tried with the hope of hyposensitization. 3. More attention should be paid to the patient's dermatophytosis. This should be under continuous therapy with some of the newer fungistatic agents, such as mixtures of undecylenic acid and zinc undecylenate, assuming these to be well tolerated. Intradermal tests with trichophytin should be performed, and if the patient exhibits pronounced reactivity desensitization might also be tried.

The susceptibility of the cultured organisms to streptomycin could be determined, but it is not felt that a course of this or any other antibiotic will provide a permanent cure. None of these measures hold real promise of success; nevertheless, they should be tried because, if attacks continue, they may lead to fibrotic changes with ensuing lymphedema.

On the theoretical side the correct diagnosis in this case is by no means certain. The case may be one of orthodox recurrent erysipelas or it may be a recurrent erysipelas-like eruption. In this event the causal organism could be anything, but the most likely nonstreptococcic cause is a sensitization to a fungus, especially Trichophyton. If this is so the eruption is a recurrent erysipelas-like trichophytid. The literature on this has been well discussed in two answers in Queries and Minor Notes, THE JOURNAL, July 10, 1943, page 77, and March 7, 1947, page 655.

## DEPILATORIES

*To the Editor:*—Kindly outline the rational treatment of hypertrichosis (superfluous hair) of the face. Please name the best depilatories, indicating the ingredients and their doses.

F. Stuczynski, M.D., Brooklyn.

ANSWER.—The only safe method for permanently removing superfluous hair is by electrolysis. Depilatories are temporary methods of removing hair and must be repeated every ten to fourteen days. Barium sulfide or a mixture of calcium and barium sulfide are chiefly used. The depilatories appear in powder form or may be sold as semisolids. If in powder form, the preparation is mixed with enough water to form a paste that is easily applied to hair regions. It is allowed to remain on the skin until dry and then washed off. The hairs come off in the washing. Andrews recommends the following formula:

| | |
|---|---|
| Calcium sulfide | 1 part |
| Water (to make paste) | |
| Zinc oxide | 3 parts |

This may be irritating, and the label should include the ingredients and a word of caution.

Mix into a paste with a little water, rub on the skin for five minutes. Scrape off softened hairs with the edge of a tablespoon; wash the skin. Apply a soothing lotion, such as calamine lotion.

McCarthy recommends the following paste:

| | Gm. or Cc. |
|---|---|
| Barium sulfide | 10 |
| Zinc oxide powder | 12 |
| Starch | 12 |

Keep container tightly closed. When ready to apply, add sufficient water to make a paste and leave on two minutes before scraping off. Apply a soothing cold cream to allay irritation. This application should be repeated every ten to fourteen days.

Roentgen therapy is mentioned here to condemn it because of its dangerous sequella. Depilatory creams with thallium salts also are condemned because of their toxicity.

## CONDYLOMA LATUM

*To the Editor:*—A 20 year old female patient was seen June 1947 for secondary syphilis, with typical macular eruption on the palms of both hands. The Kline reaction was 4 plus and quantitative Kahn 120 units. Spinal fluid was negative after three weeks of therapy. The patient was given fourteen consecutive daily injections of penicillin, Romansky formula 300,000 units each, along with oxophenarsine hydrochloride (mapharsen) 0.06 Gm. twice weekly for twelve injections, plus 1 cc. (2 grains) of bismuth compound every five days, for a total of twelve injections. The quantitative Kahn reaction has returned to negative after one year. The Kline diagnostic and exclusion reactions remain positive. Spinal fluid July 1, 1948, was normal with a cell count of 1, negative Wassermann, colloidal gold and globulin reactions. Physical examination revealed no abnormalities except for fairly severe and extensive condyloma accuminata about the vulva and anus, of two weeks' duration. In the face of an apparent return to normal of reactions to quantitative Kahn made at two-months intervals, I cannot explain the occurrence of the condylomas on a syphilitic basis. Evidence of other venereal infection is lacking. I plan to treat the condylomas with resin of podophyllum but am hesitant as to whether or not they are syphilitic. All tests were done at the same laboratory.

M.D., Ohio.

ANSWER.—Condyloma accuminatum is not due to syphilis; condyloma latum is due to syphilis. The latter occur as a manifestation of the so-called secondary stage of syphilis, when, by all the rules, the serologic test of the blood should reveal a strongly positive reaction with a high titer. In this case the history of adequate treatment followed by a serologic curve in which the Kahn quantitative titer decreased steadily, until the reaction became and remained negative, would indicate that the patient's syphilis is "cured" and that her condylomas are the nonsyphilitic accuminate type. Treatment with resin of podophyllum is well worth a trial in this case. The blood should be checked at regular intervals for about five years more and, if the Kahn reaction continues to be negative, no further antisyphilitic treatment will be necessary.

## TRAUMATIC PITUITARY NECROSIS

*To the Editor:*—I am unable to find literature which mentions pituitary necrosis secondary to trauma. We have recently had a case of basal skull fracture, in which death occurred five days after injury. Autopsy findings revealed the fracture line passing through the pituitary fossa with a blood clot surrounding the pituitary gland. Microscopic examination reveals areas of necrosis.

Harry J. Schneider, M.D., French Camp, Calif.

ANSWER.—Munslow, Haymond and Crawford (*Arch. Path.* **34**:431-434 [Aug.] 1942) reported the case of a man who died three hours after injury to his head. A basal skull fracture, which extended into the sella turcica, and areas of hemorrhage into the substance of the posterior lobe of the pituitary body were found on necropsy. In this article references are given to reports of similar cases observed by Simmonds, Schmorl and Cushing. Reverchon, Worms and Rouquier reported a case (*Presse méd.* **29**:741-743 [Sept. 17] 1921) in which sclerosis and atrophy of the pituitary body were found several months after a basal skull fracture. It would not be unreasonable to assume that the period of survival after injury might determine whether hemorrhage, necrosis or fibrosis and atrophy would be the predominating histologic characteristic.

## FLUORESCENT LIGHTING

*To the Editor:*—What are the advantages and disadvantages of fluorescent lamp illumination for the classroom?

Dorothy Donley-Dowd, M.D., Washington, D. C.

ANSWER.—Fluorescent lighting has the advantage of costing less per candle so that more light is furnished per dollar of cost. It is easy to install it so that there will be minimum of glare. It gives less heat, which is sometimes important in hot weather.

Most of the complaints are traceable to improper installation, and therefore improper distribution of the light. There is some uncorroborated evidence that exposure to fluorescent lighting reduces dark adaptation unduly.

## IMMUNIZING INJECTION INTERVALS

*To the Editor:*—In immunization of infants with the triple vaccine, pertussis, diphtheria and tetanus, mixtures how long can the intervals between injections be lengthened before it is advisable to start the series over again?

Abraham D. Cohen, M.D., New York.

ANSWER.—Even though the intervals are two to three months, a satisfactory degree of immunity may follow the final injection. The antibody response to prophylactic injections is not identical in all persons. Hence the optimum for injections is not always easy to determine.

## HYDROCEPHALUS

*To the Editor:—A young woman had a full term, hydrocephalic stillbirth as the result of her first pregnancy. Her general health is excellent. History of virus infection during pregnancy, radiation therapy, trauma, syphilis and other known complicating factors are absent. What is the probability that hydrocephalus or other anomalies will occur in subsequent pregnancies?*

M.D., New York.

Answer.—The possibility of the occurrence of hydrocephalus in the subsequent children of a woman whose first child suffered from this condition cannot be denied, but it is uncommon. Usually when one child has a hydrocephalus the other children are normal. Grulee and Bonar (The Newborn; Diseases and Abnormalities, Clinical Pediatrics Series. New York, D. Appleton & Co., 1926) mention the possibility of hydrocephalus occurring in several members of the same family. In general, unless there is a family history to the contrary, it is advisable to reassure patients that in having additional children they run no greater risk that subsequent children will be similarly affected than do all other parents.

## ACTINOMYCOSIS

*To the Editor:—A young man on the plains of Colorado picked up a small pebble to roll around in his mouth. Later his left jaw began to enlarge. The condition was diagnosed as actinomycosis. He was operated on several times, which has to a certain extent deformed his jaw. He has had x-ray treatment until all the hair on that side of his head has disappeared. Once in a while nodules form on the left side of his head, above his ear. He is otherwise healthy. I am using compresses of bichloride 1:1,000 on the side of his head, night and morning, and intravenous injections of oxophenarsine hydrochloride. The larger nodules have softened, and some have disappeared under this treatment. Can you suggest anything that might be of benefit?*

M.D., California.

Answer.—An accurate diagnosis should be made by demonstrating actinomycetes in the purulent discharge from the lesions. If the condition is actinomycosis, the best treatment is 1,000,000 units of penicillin daily for three weeks. It may be necessary to repeat this treatment after an interval of three months.

## MILK DIET

*To the Editor:—A machine shop worker, 71 years old and apparently well, drinks 4 quarts of milk every day. May his intake of calcium be harmful?*

M.D., Massachusetts.

Answer.—Serious elevation of the serum calcium does not occur even under the most favorable conditions for absorption unless an excess of vitamin D or parathyroid hormone is present. Overdosage of these may raise the serum calcium to abnormally high levels and result in metastatic calcification and other toxic effects. Excess calcium is excreted. Apparently the patient will not suffer any deleterious effects from the consumption of the calcium contained in four quarts of milk (approx. 4.5 Gm.), but the increased fluid intake should have consideration.

## IMMUNITY TO SNAKE BITE

*To the Editor:—A statement was made in a group discussion that pregnant women are immune to rattle snake venom. The physician stated that he practiced in a rattle snake country where such bites were frequent. He said that all the doctors in that territory knew this and did not believe it necessary to give anti-venin if the victim were a pregnant woman. Is this true?*

F. L. Chenault, M.D., Decatur, Ala.

Answer.—It is unlikely that a pregnant woman would be immune to rattle snake venom. This query was discussed with several well known authorities on toxic properties of venoms such as Dr. Goss and Mr. Brayton Eddy, Curator of Reptiles of the New York Zoological Society. Also, the matter was discussed with Dr. Bogert, Herpetologist at the American Museum of Natural History. They all agreed that such a possibility was unlikely. Colonel Crimmins, the well known authority on snake venoms, also concurs with these opinions.

## MYELOGRAMS

*To the Editor:—Of what use are myelograms for diagnosis of injuries of the back and what is the incidence of increased pain in the back following studies of this kind?*

J. M. Hesser, M.D., Benson, Ariz.

Answer.—Localization of intraspinal lesions such as protruded intervertebral disks, neurofibromas or other tumors can be most accurately obtained by the use of myelograms. Opaque mediums, which are relatively nonirritating and may be absorbed if not removed, such as "pantopaque" (ethyl iodophenylundecylate), can be used safely and without causing increased pain in the back.

## ENDOMETRIOSIS

*To the Editor:—In the June 5 Journal is a query by Dr. M. Karasek on endometriosis. I read the answer with a great deal of interest because the statement is made, "Therefore, the use of estrogen is usually contraindicated in any phase of this disease."*

*I have been experimenting with testosterone propionate in endometriosis for three years and have never caused endometrial implants to disappear completely, but after changing over to estrogen (diethylstilbestrol), giving large and increasing doses for six to nine to twelve months, my associates and I have found by biopsies and by repeated pelvic examination and culdoscopy that in patients taking such doses of diethylstilbestrol endometriosis was caused to atrophy completely if the drug was continued long enough. After discontinuance of diethylstilbestrol some of the patients became pregnant and some had children.*

*The advantages of diethylstilbestrol over male hormones are that there is no development of hirsutism or coarseness of voice. There is nausea when the patient starts to take the drug, but that will pass off in four to five days if the drug is continued.*

*The recommended dose is 0.5 mg. for three nights, 1.0 mg. for three nights, 2.0 mg. for three nights, 3.0 mg. for three nights, 4.0 mg. for three nights, 5.0 mg. for three nights, 10.0 mg. for three nights, 15.0 mg for three nights, 20.0 mg. for three nights, and every third night an increase of 5 mg. If the patient bleeds, give 25 mg. to 50 mg. every fifteen minutes until the bleeding stops. Do not let the patient bleed for three to six to nine months, according to the severity of pain and the extent of the endometriosis.*

*I recommend this treatment for use after cancer has been ruled out in many cases instead of surgical or roentgen treatment. Given presurgically it makes surgery easier because of atrophy of ovaries. Diethylstilbestrol may be given to patients with associated disease that must be removed. When diethylstilbestrol is discontinued the patients usually return to normal menstruation, ovulate and are free from almost all pain.*

*Karl John Karnaky, M.D., Medical Arts Bldg., Houston, Tex.*

## ERYTHROBLASTOSIS

*To the Editor:—We feel it necessary to correct the misunderstanding which is likely to arise from the answer given in your queries page to Dr. R. E. Heerens' question regarding spasticity following apparently cured erythroblastosis fetalis (The Journal, October 2, page 394).*

*It is stated here that there is "an extremely high incidence of infantile jaundice and blood incompatibility among children suffering from mental deficiency, athetosis, spasticity and other cerebral defects of early infancy." The data presented in the articles given as references for this statement do not justify such a generalization. Actually (Yannet, H., and Lieberman, R.: J. A. M. A. 130:335-340 [Feb. 9] 1946) it was found that in a group of one hundred and nineteen mental defectives classified as "undifferentiated," in that there was no clearly indicated etiology or typical clinical picture (such as mongolism), the probable incidence of damage due to Rh blood group incompatibility was not higher than 8 per cent.*

*In short, the study referred to indicates that an appreciable but small number of "undifferentiated" mental defectives will have a background of blood group incompatibility with respect to the Rh factor.*

*It is not to be inferred from this that the incidence of cerebral damage is high in erythroblastotic infants who have made an apparently satisfactory response to treatment in the newborn period. The reverse is true. The incidence of subsequent cerebral defect in infants surviving erythroblastosis fetalis in the newborn period is only about 8 per cent. This need not be considered a serious risk by mothers sensitized to the Rh factor who want to try to enlarge their families, although the occurrence of a badly damaged child may be tragic in any individual instance.*

*It is our belief from personal observation of many such infants that the clinical signs of brain injury are uniformly present in the first week of life in babies destined to be defective in the future, and that the signs are unmistakable in most instances. They consist mainly of varying degrees of lethargy, opisthotonos, and spasms of rigidity, typically occurring with arms extended and inwardly rotated and fists clenched. If an infant examined daily by an experienced observer survives the first week without showing such signs, prognosis for future normal development is excellent.*

*Finally, it should be mentioned that the future development of some babies with brain damage due to erythroblastosis fetalis may be surprisingly good. Ultimately normal function will occasionally be seen in a child more or less severely handicapped in early infancy, particularly when the defect seems largely confined to the motor system.*

*Victor C. Vaughan III, M.D.*
*Fred H. Allen Jr., M.D.*
*Louis K. Diamond, M.D.*
*Boston.*

## SUBSTERNAL PAIN

*To the Editor:—In Queries and Minor Notes in the July 17, 1948 Journal, page 1097, under the title "Substernal Pain," the question was raised whether sea food is poor in cholesterol. In addition to the data by R. Okey included in your answer, I submit further analytical data which may be of interest.*

*As the dietetic importance of canned fish is increasing steadily, my associates and I investigated the total cholesterol content of canned fish by the method of Sperry and Brand and Sobel and Meyer, and found the following values. Values are expressed on the basis of dry substances:*

| Fish | Percentage | Fish | Percentage |
|---|---|---|---|
| Yellowfin tuna........ | 0.149 | Pacific mackerel ....... | 0.24 |
| Bluefin tuna ........ | 0.172 | Horse mackerel ........ | 0.27 |
| Albacore ............ | 0.144 | Sardines .............. | 0.19 |
| Skipjack ............ | 0.180 | | |

*In comparison with the values for round beef (0.4 per cent), veal shank (0.5 per cent), calf liver (1.42 per cent), whole egg (1.8 per cent), the cholesterol content of canned fish seemed to be particularly low.*

*E. Geiger, M.D., Terminal Island, Calif.*

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# SYMPTOMATIC TREATMENT OF CERTAIN TYPES OF CHRONIC HEADACHE

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and
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Headache is a symptom which is found in a variety of conditions. Two of the commonest syndromes in which it plays an important role are those associated with trauma and the reaction patterns expressed in psychoneurosis. In our clinic these two types of headaches far exceed all other groups in number.

Because of the lack of unanimity with respect to diagnostic criteria in the classification of various types of chronic headache, we wish first to present and discuss briefly the criteria used in this study.

Patients classified as having post-traumatic headaches fulfilled the following criteria: the headaches of which they complained appeared after head trauma and persisted for longer than two months following the trauma.[1] No attempt has been made in the present study to subdivide this group of patients further in any way for purposes of statistical analysis and comparison, e. g., open versus closed injuries and duration of coma after injury.

Considerable difference of opinion exists as to the nature of the most important factors in the causation of post-traumatic headaches. A summary of the views of many authors[2] reveals essentially three opinions. Some consider the causative factors to be exclusively psychologic, some to be exclusively physiologic and some to be composed of both factors. The latter view has been emphasized previously by us[1] and appears to be supported by the greatest weight of the evidence presently available.

The physiologic mechanisms which are presumably involved in the production of post-traumatic headaches are: (1) distention of cranial blood vessels, (2) sustained contractions of the skeletal muscles of the head and neck and (3) scarring of the extracranial soft tissues.[3] Psychogenic factors include the immediate emotional effect of the injury (e. g., anxiety, depression, resentment or frustration), the pretraumatic neurotic tendencies or conflicts of the patient and the psychic conflicts due to the environmental stresses incident to the injury.

Patients classified as having psychogenic headaches fulfilled the following criteria: their headaches regularly occurred in conjunction with psychic conflicts or situations of psychic stress; physical and laboratory examinations revealed no evidence of physical illness or anomaly which might be expected to produce headaches; there was no history of immediately antecedent trauma, and the symptoms were not those of true migraine.[4]

The ways by which such psychologic conflicts or stress result in the physical symptom of headache often (perhaps regularly) involve the operation of certain physiologic mechanisms. Such mechanisms include changes in the caliber of the cranial vessels (probably chiefly vasodilatation) and spasm or tonic contraction of the skeletal muscles of the head and upper cervical region.

There appears to be a wide diversity of opinion as to the value of each of the multitude of remedies that has been proposed for the treatment of these types of headaches. The present study was undertaken to assess and compare the effects of representative drugs under conditions which were as carefully controlled as possible.

## MATERIAL AND METHODS USED

Two groups of patients are included in this study: those attending the headache clinic at a large general hospital and those attending a veterans' clinic. The former group consisted of both male and female subjects and were of all ages. The latter group was composed entirely of male subjects, for the most part between the ages of 20 and 40.

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Electroencephalographic examinations were made by Margaret B. Rheinberger, Ph.D., and A. L. Deutsch, M.D.

Read before the Section on Nervous and Mental Diseases at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

Presented with permission of the Chief Medical Director, Department of Medicine and Surgery, Veterans Administration, who assumes no responsibility for the opinions expressed or conclusions drawn by the authors.

From the Division of Neuropsychiatry, Montefiore Hospital, the College of Physicians and Surgeons, Columbia University, and (Dr. Friedman) the Headache Clinic Section, Mental Hygiene Service, Veterans Administration, New York.

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3. Simons, D. J.; Day, E.; Goodell, H., and Wolff, H. G.: Experimental Studies on Headache: Muscles of the Scalp and Neck as Sources of Pain, A. Research Nerv. & Ment. Dis., Proc. **23:** 228, 1943.

4. Friedman, A. P., and Brenner, C.: Treatment of the Migraine Attack, Am. Pract. **2:** 467, 1948.

Five hundred and twenty-one patients were treated over a period varying from two months to three years. The number falling in each of the diagnostic classifications is shown in table 1.

The general principles of treatment which were followed were those previously described.[5] A majority of the patients received a combination of simple psychotherapy and pharmacotherapy, while a smaller group was given psychotherapy alone. The drugs used included analgesics (acetylsalicylic acid; acetylsalicylic acid, acetophenetidin and caffeine; acetylsalicylic acid with i-amylethyl barbituric acid; acetylsalicylic acid with caffeine; and diethylcinnamamide[6]; vasoconstrictors (ergotamine tartrate; ergotamine tartrate with caffeine[7]; dihydroergotamine methane-sulfonate[7]; and ephedrine with i-amylethyl barbituric acid), vasodilators (sodium nicotinate; nicotinic acid, and 2-benzyl-4,5-imidazoline hydrochloride ["priscol"][8] alone and with caffeine), hormones (testosterone propionate[6] and alpha-estradiol benzoate[6]) and hormones combined with vitamins (testosterone propionate with vitamin B).

## RESULTS

In a group of 334 patients with psychogenic headache there were 286 trials with analgesics, 165 trials with vasoconstrictors, 135 trials with vasodilators, 104 trials with a combination of hormones and vitamins and 86 trials with inactive substances ("controls"), either placebos by mouth or parenterally administered isotonic sodium chloride solution. The results are summarized in table 2. It should be mentioned that there was no significant difference between the results obtained by administration of inactive substances orally or parenterally.

TABLE 1.—*Number of Patients with Headache and Their Classifications*

| Type | No. of Patients |
|---|---|
| Psychogenic | 334 |
| Post-traumatic | 187 |
| Total | 521 |

From table 2 it appears that the best results in this group of patients was obtained by the administration of analgesics and that the other types of medication were no more effective than the inactive substances used.

One hundred and eighty-seven patients with post-traumatic headache were treated. In this group there were 164 trials with analgesics, 85 trials with vasoconstrictors, 92 trials with vasodilators, 45 trials with a combination of hormones and vitamins and 43 trials with inactive substances, all of which again are listed in the accompanying table as "controls," since there was no difference between the results obtained by administering them orally or parenterally. The results of treatment for this group of patients are summarized in table 3.

Again it appears that the best results were obtained by the administraion of analgesics and that the other types of medication were no more effective than the inactive substances.

Psychologic tests and electroencephalograms were also performed on many of these patients with post-traumatic headache who are included in this study as well as others who are not included for reasons of incomplete follow-up. A thorough analysis of the results of these special examinations is still under way, but it is possible to report at this time that the electroencephalograms of 258 patients with post-traumatic headache failed to show any higher percentage of abnormalities in frequency range than would be expected in a random sample of the population. Furthermore, psychologic tests in patients with post-traumatic headache (Wechsler-Bellevue and/or Rorshach) did not reveal any significant differential pattern on the basis of evaluating the entire group tested.

TABLE 2.—*Results of the Use of Drugs in Patients with Psychogenic Headache*

| | Analgesics | Vasoconstrictors | Vasodilators | Hormone and Vitamin | Control |
|---|---|---|---|---|---|
| Patients improved (percentage) | 71 | 49 | 51 | 58 | 57 |
| Patients not improved (percentage) | 29 | 51 | 49 | 42 | 43 |

## COMMENT

The effectiveness of drug therapy in the treatment of psychogenic and post-traumatic headaches was influenced by many factors. To begin with, the patients attended a clinic devoted exclusively to the problem of headache. Complete studies, including roentgenograms of the skull and [illegible] were done before any medicatio[illegible] roughness of the investigation was in itself a psychotherapeutic procedure in many cases. After the medication was started, the patient returned to the clinic at regular intervals at which time some form of psychotherapy was given. The effectiveness of the medication depended to some extent on the physician prescribing the medication, the time he spent with the patient and the frequency with which the patient was seen by him. We noted in many cases that patients would maintain a state of improvement if they were seen at weekly intervals but would have a recurrence of headache if they were seen at monthly intervals instead. In addition, the factors of disability compensation and litigation played a part in many of the cases of post-traumatic headache.

Fifty to 60 per cent of the patients with psychogenic and post-traumatic headache responded favorably to almost any medication given them. The analgesics and some of the oral placebos were taken only at the time of the headache, while the hormone-vitamin combination and the isotonic sodium chloride solution were given by injection at regular intervals. The effect of medication given by injection in cases of psychogenic illness is too well known to require further discussion here. In addition, several of the patients receiving the combination of hormones and vitamins reported a feeling of well-being that undoubtedly played some part

TABLE 3.—*Results of the Use of Drugs in Patients with Post-Traumatic Headache*

| | Analgesics | Vasoconstrictors | Vasodilators | Hormone and Vitamin | Control |
|---|---|---|---|---|---|
| Patients improved (percentage) | 70 | 44 | 50 | 58 | 63 |
| Patients not improved (percentage) | 30 | 56 | 50 | 42 | 37 |

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[5] Friedman, A. P.; Brenner, C., and Merritt, H. H.: Management of Patients with Chronic Headache, J. A. M. A. **132**: 498 (Nov. 2) 1946.

[6] These drugs were furnished by the Schering Corporation.

[7] These drugs were furnished by the Sandoz Chemical Works, Inc.

[8] This drug was furnished by Ciba Pharmaceutical Products, Inc.

in their improvement. The similarity of response obtained with the various medications in psychogenic and post-traumatic headache (table 4) again emphasized the close relationship between these two types of headache.

Psychotherapy alone seemed to be slightly less effective than the combination of psychotherapy and pharmacotherapy in the treatment of psychogenic headache, even though the patients in this group were specially selected as promising candidates for psychotherapy (table 5). This result is perhaps somewhat influenced by the fact that the majority of the patients were seen for psychotherapy during clinic hours in a busy clinic. One of us was able to see 9 of the 27 patients in this group by appointment in his private office. Seven (77 per cent) were improved, as compared with a 50 per cent improvement in the other 18 patients.

Table 4.—*Comparison of the Effect of Drugs in Psychogenic and Post-Traumatic Headache*

| | No. of Patients Improved (Percentage) | No. of Patients Not Improved (Percentage) |
|---|---|---|
| Analgesics | | |
| Psychogenic | 71 | 29 |
| Post-traumatic | 70 | 30 |
| Vasoconstrictors | | |
| Psychogenic | 49 | 51 |
| Post-traumatic | 44 | 56 |
| Vasodilators | | |
| Psychogenic | 51 | 49 |
| Post-traumatic | 50 | 50 |
| Hormones and Vitamins | | |
| Psychogenic | 58 | 42 |
| Post-traumatic | 58 | 42 |
| Controls | | |
| Psychogenic | 57 | 43 |
| Post-traumatic | 63 | 37 |

Table 5.—*Comparison Between the Effect of Psychotherapy Alone and Psychotherapy Plus Pharmacotherapy in Patients with Psychogenic Headache*

| | No. of Patients Improved (Percentage) | No. of Patients Not Improved (Percentage) |
|---|---|---|
| Psychotherapy | 59 | 41 |
| Psychotherapy plus analgesics | 71 | 29 |

## CONCLUSIONS

Five hundred and twenty-one patients with psychogenic and post-traumatic headaches were treated, 494 by a combination of psychotherapy and pharmacotherapy and 27 by psychotherapy alone.

The drugs used included analgesics, vasoconstrictors, vasodilators, hormones combined with vitamins, placebos and parenterally administered isotonic sodium chloride solution.

The best results in each group of patients were obtained by the use of analgesics. The other drugs gave no better results than those obtained by the use of inactive substances.

The results we have reported strongly suggest that in cases of psychogenic and post-traumatic headaches the effectiveness of symptomatic treatment is primarily caused by the patient's psychologic reaction to the treatment situation in general and in particular to having received a "remedy" from the physician. Evidence for this is the fact that almost equally good results were obtained by the use of placebos.

The similarity of results of drug therapy of patients with post-traumatic and psychogenic headaches suggest that the mechanisms of production of the two types of headache are closely related and probably are similar responses of the body to disturbing psychologic stress.

## ABSTRACT OF DISCUSSION

Dr. Pearce Bailey, Washington, D.C.: The studies of Dr. Friedman and his colleagues tend to clarify the subject of post-traumatic and psychogenic headaches. This problem, particularly post-traumatic headache, was a perplexing one during two world wars, and it is gratifying to see that Dr. Friedman's investigations include follow-up studies of veteran patients. In military psychiatric and neurologic practice, much of the difficulty concerning post-traumatic headaches arose from an inclination on the part of many medical officers to label this complaint as either organic or psychogenic rather than to evaluate both longitudinally and in cross section the total physiologic and psychologic reactions of a person to a traumatic situation, as has been done by Dr. Friedman and his colleagues. This propensity often led to helpless indecision, both as to the therapy and ultimate disposition of these patients. In a large naval hospital, I had occasion to examine about 200 patients with headache following head injury. Only a few of these appeared to suffer from a purely organic disability devoid of any psychologic coloring. This is comprehensible, since these injuries were usually sustained in circumstances contributory to severe psychologic reactions, namely: (1) a pretraumatic period of fatigue and prolonged emotional stress, (2) a traumatic episode which threatened the integrity of the head and (3) a post-traumatic period of confusion and/or panic leading to defense mechanisms against a recurrence of the traumatic experience by the establishment of a true disability, with consequent discharge from the service and possible monetary reward in the form of pension or retirement benefit. No exact statistical study was made of our group of patients with post-traumatic headache, but the patients were roughly classified into several categories, according to the quantity and quality of their psychobiologic reactions. There was, of course, considerable overlapping of the categories. By far the largest group was characterized by a history of normal pretraumatic personality development, whose emotional reserves had become depleted from prolonged combat and in whom the head injury served as a precipitant for emotional disorganization. Here the picture was one of panic or acute anxiety, headache, startle reaction, battle dreams and sympathetic overstimulation with or without objective evidence of structural damage to the nervous system. The headache was subordinated to the over-all distress and would rise and fall in synchronization with the general tension. These patients abreacted intensely to combat scenes in interviews with "amytal" (5-isoamyl-5-ethylbarbituric acid) anesthesia and were helped by psychotherapy, and some were even returned to duty.

Dr. Arnold P. Friedman, New York: We have found that patients suffering from both psychogenic and post-traumatic headaches vary in their reaction patterns. Some show evidence of conversion hysteria; others show schizoid tendencies and compulsions. Our experience has been that psychotherapy combined with drug therapy is much more effective than drug therapy alone in reducing the frequency, duration and severity of the types of headaches we are discussing. To overlook or fail to treat the psychologic conflicts in a patient with chronic headaches of these types is to run the risk of therapeutic failure. Analgesics (salicylates or acetophenetidin) combined with short-acting barbiturates seem to be the best medicaments for these types of headaches. The analgesic acts by raising the pain threshold, and the sedative action of the barbital decreases the tension. In some cases, precipitating psychologic factors may be rather superficial and the patient does not need profound therapy; in others, it may be rather difficult to uncover the dynamics of the mental processes involved which are causing or precipitating the headaches. If the problem is mainly one of environmental difficulties, we find social agencies to be of extreme value. I have been asked to name some effective analgesics. In this group codeine raises the pain threshold the highest, but in general acetylsalicylic acid and acetophenetidin usually suffice.

# THERAPY OF MIGRAINE

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and
HAROLD G. WOLFF, M.D.
New York

The therapy of migraine falls into two categories; treatment of the individual attack of headache and prevention of, or reduction in, the frequency and severity of recurrences. Migraine is a syndrome with certain easily identifiable features and a variety of associated phenomena. Characteristically, it is a periodic headache which is unilateral in onset, but which may become generalized. It may be preceded by visual disturbances, paresthesias in the extremities or speech disorders. With the headache there may be irritability, photophobia, nausea and vomiting. The attack may be followed by a feeling of especial well-being, and the patient is usually free of disagreeable head sensations between episodes. The headache itself is the end manifestation of a chain of bodily changes set off by pernicious emotional states. This head pain is associated with dilatation of certain pain-sensitive arteries inside and outside the head. The prodromal phenomena, scotomas, paresthesias and the like, arise from constriction of arteries in strategic areas of the brain. It is possible that painful vasodilatation represents an abortive attempt on the part of the body to compensate for this vasoconstriction and restore the homeostasis of cranial circulation.

## TREATMENT AND PREVENTION OF ATTACKS

Because of its dramatic, disabling nature, the physician is most frequently called on to deal with this pain. The most potent agent available for the constriction of these painfully dilated cranial arteries is ergotamine tartrate. It is most effective intramuscularly in doses of 0.25 to 0.50 mg. as early as possible after the pain appears. The patient should be taught how to give himself the medication so that he can get it within the first half hour of the headache. As an alternative, four 1 mg. tablets should be taken sublingually as soon as possible after the beginning of the headache, followed by two such tablets every half hour until a total of 10 mg. has been given in an hour and a half. Dihydroergotamine (DHE 45), an ergot derivative said to have fewer of the undesirable side effects of ergotamine, is useful but less effective in intramuscular doses of 2 to 4 mg.

Ergotamine tartrate relieves headache within an hour in 80 per cent of cases. When this fails, drugs which raise the pain threshold should be used. The most satisfactory of these is codeine phosphate, 60 mg. orally, or hypodermically when vomiting interferes with absorption. Morphine and newer synthetic analgesics should be avoided because of the danger of addiction.

Amobarbital sodium ("amytal sodium") 0.2 Gm. by mouth, given at the same time as the ergotamine, will insure rest and relaxation, an integral part of treatment. An ice cap to the head is comforting. Bed rest in a quiet, darkened room is essential during the pain and for at least an hour after the pain has subsided.

Many investigators have advocated the use of vasodilators in the therapy of migraine. In a small series at the New York Hospital, these drugs have proved effective in ending the vasoconstrictor stage and sometimes effective, though unpredictable, in aborting the later painful vasodilator stage. Carbon dioxide, the most potent intracranial vasodilator, will abolish scotomas, and sometimes abort early headache. It is given by face mask in a mixture of 10 per cent carbon dioxide and 90 per cent oxygen for three periods of four minutes each, with intervals of five minutes between each period. Four minutes at a time is about the limit of tolerance of the average person for the decided hyperventilation produced by this drug. In a few patients headache has been aborted during the prodromal stage by inhalation of amyl nitrite or by nicotinic acid orally in flushing doses of 100 to 200 mg. Once the headache is established, no therapeutic effect is obtained from this group.

A wide variety of other agents and procedures have been used and found moderately effective in the prevention of attacks. Comprehension of the nature of the migraine phenomena aids in the understanding of how such diversified, often irrational and sometimes frankly contradictory methods can modify the course of this syndrome. The importance of the patient–physician relationship cannot be overemphasized. Conspicuous among the factors contributing to the apparent effectiveness of many of these procedures are belief in the physician and the establishment of a clearly defined regimen.

Thus far measures for the management of the individual attack have been considered. However, it must be borne in mind that migraine occurs in a setting of life situations and attitudes which result in accumulated emotional tension and fatigue. Therefore, more important in the treatment of such a patient is the identification of the stressful factors in his life which lead to the phenomena of this attack.

## FACTORS LEADING TO MIGRAINE

First, it is essential to help the patient see the setting in which the attacks occur. Second, he must be aware of those personality features and habits which make him react as he does and thus predispose to the pernicious feeling state which leads to headache. Third, he must be brought to the realization that he must ultimately solve the problem in terms of his own equipment and experience, perhaps with the advice and support of his physician.

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Read before the Section on Internal Medicine at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

From the New York Hospital and the Departments of Medicine (Neurology) and Psychiatry, Cornell University Medical College, New York.

Persons with migraine are not necessarily "neurotic" in the usual sense and, in fact, may have made a very successful adjustment in life. However, they have certain personality characteristics in common. They have the defects of their qualities.

They are tense, driving persons who are rigid, ambitious and perfectionistic. They have found that doing "more than and better than" their fellows brings a good deal of satisfaction. However, this end is accomplished at great cost in energy.

Considered reliable, conscientious and hard working, they find more and more responsibility coming their way. To this is added more stress by the belief that no one can do a job quite as efficiently or as thoroughly as they. Almost invariably persons with migraine delegate responsibility poorly.

They become resentful because they cannot keep up with the load which the world and they themselves impose. The natural outcome is tension, fatigue and exhaustion. In this setting, headache makes its appearance.

## MANAGEMENT OF PATIENT

The first step is to identify the personality features which make the patient liable to get into such situations and to visualize the stressful circumstances that bring him to the point where his body makes the insistent and painful demand to stop, which we recognize as the migraine attack. This is accomplished in an interview which uncovers, not only the usual medical data, but information as to the patient's background, his goals and standards and how he seeks and sets them.

Once the salient facts of the personality and the way of life are established in the mind of the physician, efforts must be begun to bring this understanding to the patient. Fortunately, because these persons are intelligent and aggressive, they will do much to work out their own problems when properly oriented and advised. Because of their fundamental insecurity and rigidity, many tend to deny that their "feelings" have anything to do with their headaches. This is where the physician can make each headache "pay its way" in terms of increased understanding by the patient of the events, emotional as well as external, which lead to his headache. It is important to realize that the period of twenty-four hours or so following a stressful period is as vulnerable as the period of tension as a time for headache to appear. The so-called "Sunday headache" is an example of difficulty arising in the "let down period" after a week of intense and exhausting application. Rage, resentment and frustration are often common denominators of the emotional derangement preceding an attack of migraine. However, dramatic events need not precede headache—many follow long periods of so-called routine living with slowly accumulating tension.

When allowed to discuss these matters freely, patients will frequently see a repetition of these pernicious emotional states in relation to other headaches.

Paralleling efforts to help the patient see the setting of the attacks and to recognize the relevant feeling states, there should be modification of his daily program. The amount of work which the patient is allowed to do should be reduced to three quarters of what he is "used to." This will relieve him of pressure and tension produced by rigid adherence to self-imposed quotas. He must be made aware of his fluctuating energy levels and urged to fit his work load as nearly as possible to his available energy.

Rest and relaxation are an integral part of the management of such a patient. Exercise commensurate with interests and capabilities, carried to the point of pleasant fatigue, not exhaustion, should be part of each day's program. Hobbies, especially those stressing motor activity, are to be encouraged.

At least eight hours of sleep at night and a mid day rest period must be assured for these persons who are inclined to dismiss sleep as a needless hindrance. Mild sedation with barbituric acid derivatives may be employed early in the treatment to facilitate the patient's change of pace. The sedative tub bath—warm, not hot—is advised for half an hour late in the afternoon and before bedtime as a regular routine.

Both the physician and the patient must be constantly aware that these chemical and physical measures to aid in relaxation as well as any drug therapy directed at the individual headache attacks are no more than crutches to help the patient into more efficient and less costly ways of living . A fundamental error in the management of migraine is to become preoccupied with the trees to the exclusion of the woods.

The patient must be urged to plan less for each eventuality and to allow himself to deal with problems as they arise, not before. He will need strong assurance of his ability to do this at first, but he will find, as he explores this new approach, that he is well equipped to deal with problems in this way. With greater spontaneity will come less anxiety and tension, which will in turn enhance his efficiency and productiveness.

The need for reassurance is repeatedly evident in these persons, emphasizing their true feelings of insecurity, which are frequently masked by a sophisticated, self-assured manner. They are beset by grave doubts in many spheres, and these anxieties add to their tension and thus contribute to their illness. An important part of the treatment is to afford them ample opportunity to discuss whatever problems they feel are pressing, regardless of the apparent relevance to the problem of headache. The attention and support of a sympathetic and understanding physician who discusses and informs but does not judge is a major therapeutic agent. During the reorientation and readjustment that patients with migraine must necessarily make, this reassurance and support must be constant and unvarying. If the patient who is making what for him are major fundamental changes in his way of life feels for a moment that the physician is uninterested or unsympathetic he will abandon all that he has gained and return with greater tenacity to his former habits.

This approach to the problem of migraine has been used at the New York Hospital for the past fifteen years. It has been used by many physicians of varying degrees of experience under a variety of circumstances.

In evaluating this form of therapy one must realize that it may demand more in terms of personal adjustment than the patient may be willing to make. Many persons are satisfied to learn that they do not have a brain tumor and are unwilling to pursue the matter further. It is the physician's responsibility to make the patient aware of the cost of his way of life and then to support whatever decision the patient makes as to what he wishes to do about it.

In 1940 Wolff made a detailed study of 64 patients with migraine who were treated by this method. Sixty-four per cent had no headache or less frequent and less intense attacks; 16 per cent still had headache which was controlled to some extent, while 20 per cent had failed to improve. A random selection of 50 cases seen by various physicians in our clinic within the past three years showed a similar result. Approximately two thirds of the patients were free or nearly free of headache, while the remainder were not benefited.

The development of less costly ways of life, analysis of the special circumstances under which individual attacks may occur and information of the specific changes necessary are the primary goals of successful therapy in migraine. Many persons who have been successful to a degree while carrying on under their largely self-imposed stresses are fearful and doubtful about changing their way of life for another which appears "inefficient" and perhaps formless. It means to them replacing a tried and reasonably effective way of dealing with life situations with something which seems entirely opposed to everything that they have ever done. It is essential that they realize that, in fact, to allow themselves more spontaneity and freedom of action, it is to bring into use a part of their personalities neglected or unrecognized.

## SUMMARY

Therapy of migraine falls into two categories: treatment of the attack and prevention of recurrences.

Many of the preheadache phenomena are associated with intracranial vasoconstriction. Intracranial vasodilators abolish these initial symptoms and may sometimes but unpredictably abort the headache. The headache is associated with painful vasodilatation of cranial arteries. Ergotamine tartrate parenterally is the drug of choice for the management of this stage and is most successful when administered at the onset of the headache.

Emotional reactions and attitudes that result in accumulated tension and fatigue set off a series of bodily changes which result in the migraine attack. Reduction in frequency and severity of attacks depends on identification and modification of stressful factor in the relationship of the patient to his environment. The physician must guide the patient into less costly behavior patterns and lend emotional support during this reorientation. About 2 persons out of 3 can be helped, in terms of reduction in frequency and severity of headache, by such reorientation.

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## ABSTRACT OF DISCUSSION

Dr. Roland P. Mackay, Chicago: I believe the division of the treatment of migraine into the treatment of individual attacks and the prevention of attacks is sound and wise. One must not pay too much attention to the individual attacks, but must think also of their prevention. In this regard, psychologic aspects are important although they are not the only ones to be considered. For me, it is helpful to try to formulate a picture of the personality structure of these patients. A remarkable number of persons with migraine are alike mentally, and Dr. Marcussen has presented to you those characteristics with great fidelity to the facts. Usually these patients are intelligent, keenly perceptive, thoroughly controlled persons, who often have a sense of inadequacy and an inner urge to overcome this inadequacy. They want to be accepted. Consequently, they are intolerant of obstruction both by persons and by things. They are "the finest people on earth," if I may use that expression. They keep the wheels moving. They often exhaust their energies, but are usually able to keep on going and finally pay the penalty. They are responsible for much progress, but are somewhat perfectionistic. Since they are so well controlled, they find themselves often inhibiting or suppressing their own hostilities. It is this repressed hostility that is so frequently the precipitating factor in inducing attacks. The inherited element in migraine seems to be a physiologic mechanism which is potentially ready and which the psychologic and other precipitating factors set in motion. I believe that the prevention of attacks must start in childhood. If parents start with a child, accepting him with abundant love and admiration, emancipating him early and putting him on his own responsibility, he will not likely grow up to suffer from migraine of psychologic origin. In my experience 10 mg. of ergotamine tartrate by the mouth is too much, and probably would lead to undesirable individual reactions. Dihydroergotamine is at least as effective as ergotamine tartrate and much less apt to be toxic. I believe it is worthy of supplanting ergotamine tartrate entirely.

Dr. Eugene Foldes, New York: I suggested that in migraine intracranial retention of liquid and consecutive irritation of certain structures of the brain is important. This concept led to the therapeutic application of the dietary which I called antiretentional. The antiretentional diet is high in proteins and vitamins which have an antiretentional action and is restricted to a greater or smaller extent in carbohydrates, fats, liquids and sodium chloride, which are conducive to retention of liquid. The efficacy of this treatment in the prevention of migraine was confirmed. In several publications during the last fifteen years I proposed that for the development of certain diseases such as migraine, epilepsy, the eclampsias, Ménière's syndrome, gout and bronchial asthma two factors are necessary. The one is a disturbance in the general water and mineral metabolism and the other factor is a local predisposition for temporary accumulation of liquid in one organ or another. I suggested that the local predisposition is a result of local circulatory disturbances. We may identify vasoconstriction and vasodilatation, emphasized by Dr. Wolff and others, as the local circulatory disturbances in the brain which, in the presence of disturbed general liquid metabolism, lead to temporary edema and the attack of migraine. Certain therapeutic measures are based on the concept that vasomotor disturbances are instrumental in migraine. These therapeutic measures are successful in terminating the attack once it has developed. In contrast, the aim of the antiretentional therapy is the prevention of migraine by preventing intracranial accumulation of liquid. If we succeed in this aim, vasomotor disturbances either do not develop or else are ineffective in producing the migraine paroxysm. This is demonstrated by cases of my observation in which ergotamine preparations were used by patients regularly before the institution of antiretentional therapy. Subsequently the administration of these preparations could be discontinued because no more attacks of migraine developed.

Dr. Robert M. Marcussen, New York: I agree with Dr. Mackay's statement that 10 mg. of ergotamine tartrate by mouth is a large dose. We advised that amount because we think that is the maximum that can be taken; if no effect is obtained from 10 mg. taken in an hour and a half, it is unlikely that oral medication will be of any effect in that particular attack. The oral administration of ergotamine tartrate is at best much more unpredictable than parenteral administration. A wide variation in the tolerance of individual persons for ergotamine tartrate has been observed. We have always emphasized that it should not be given orally or parenterally more than once a week. However, we have 2 patients, one who has taken ergotamine tartrate hypodermically daily for nine years and another one for fourteen years with minimum side effects. They represent extremes but suggest that ergotamine may be better tolerated than has been thought in the past.

# ULCERATIVE COLITIS

## Ileostomy: Problem or Solution?

LELAND S. McKITTRICK, M.D.
and
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Boston

Idiopathic ulcerative colitis lends itself particularly well to discussion before a combined meeting such as this. Its problems present a real challenge to internist and surgeon, for only through the understanding and well coordinated efforts of both can the patient be assured of a quality of care likely to succeed.

It is not our purpose today to outline details of clinical diagnosis or technical management; we wish instead to emphasize the principles followed in surgical care and the indications for the several operations used. From a study of the postoperative results in the group of patients who have been under our personal care and under the care of those associated with us in this assignment at the Massachusetts General Hospital,[1] we have attempted to determine just what adjustment the patient with an ileostomy can make to the social and economic problems presented to him. At the present time, there is widespread interest in methods of therapy, surgical or otherwise, which avoid ileostomy or substitute for it other defunctioning procedures. As a preliminary to understanding such measures or the need for them, we must come to a realistic evaluation—from the patient's point of view—of the nature of social existence with an ileostomy.

### THE PATIENT

Much has been written in recent years concerning the psychiatric aspect of ulcerative colitis, and much emphasis has been placed on the importance of the psychiatrist in the treatment of the disease.

As surgeons, our more intimate contacts are with those patients who, for one reason or another, have not responded to medical treatment. We recognize fully the emotional instability of most of them, but we emphasize the seriousness of the organic disease and insist that responsibility for these patients should remain with the internist or surgeon and not be transferred to the shoulders of the psychiatrist.

An occasional patient with the disease is eminently "treatable" psychiatrically; such patients may or may not exhibit the "grief response" considered to be of specific significance by Lindemann. More frequently, organic disarrangement proceeds *pari passu* with mental disorder in a fashion which renders classical psychiatric technics difficult and dangerous.

Of greater significance in a general sense has been the realization that the ulcerative colitis patient is a strongly dependent personality and that a filial devotion to physician or surgeon may develop during treatment. The psychiatrist has clarified this fact and brought it into sharp focus by his frequent demonstration that the patient with ulcerative colitis has lost a parent, sibling, friend or mate on whom he formerly was dependent, an event immediately preceding onset of symptoms. This sets the stage for a physician-patient relationship of extraordinary importance in the surgical care of the disease.

Of greatest importance is the recognition by the internist and surgeon of the value of this close physician-patient relationship. This is particularly true following ileostomy, when the patient seeks an emotional attachment to someone who understands his physical and emotional problems. Recognition and acceptance of this responsibility by the surgeon permit the patient to develop dependence and afford him the relationship so essential to complete adjustment. The surgeon will rarely be called on to be a more effective psychiatrist than in dealing with this complex disease, and he will see few patients who are so appreciative of understanding, interest and encouragement.

### PRINCIPLES OF TREATMENT

Many patients respond well to careful and understanding medical care; it is the patients with intractable disease who must be cured by surgery. With but few exceptions the price paid for eradication of the disease is a permanent ileostomy.

What should be our objectives in the management of a given case? Should we be content to offer the patient a life of reasonable comfort and semi-invalidism with his gastrointestinal tract in continuity or should we seek more, possibly a complete cure, or at least control at a level which permits normal development of the child and a productive, useful life for the adult? Is ileostomy too much to pay for a cure? What is the place of the patient with an ileostomy in the social and economic life or his or her family and community? The answers to these questions are of primary importance in the understanding and management of patients with this condition.

*Objective of Surgical Treatment and Responsibility of the Surgeon.*—It is our objective in the management of the patient with ulcerative colitis to return that patient to society capable of becoming a useful member of his family and community life.

Any form of surgical treatment which does not have an ileostomy as its initial step is so unusual that it is of little statistical significance in a general discussion of this type. Despite the widespread impression that early ileostomy will result in control of the pathologic condition of the colon and permit later closure in a high percentage of cases, we know of no convincing evidence to support this. It is our belief that ileostomy in the very early stages of the disease will not permit later closure (with permanent arrest of the disease) in enough patients to warrant its routine performance. Essential to a happy life with a permanent ileostomy is a patient who has known the ravages of the disease and who prefers the inconvenience of an ileostomy to existence with partially controlled colonic symptoms. If routine ileostomies are performed on patients who have not experienced the full impact of the disease, many will find it impossible to adjust themselves satisfactorily to their ileostomies.

The responsibilities of the surgeon are great. Once ileostomy has been recommended as the procedure of choice, he must be prepared to give untiringly of his time and thought to the many details in the postoperative care of the patient. He must accept the responsibility of restoring that patient to a state of good

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From the Surgical Services of the Massachusetts General Hospital, Boston.

Dr. Andre Monsaingeon, of Paris, France, made the tabulation of material from the records of these patients.

Read before the joint meeting of the Section on Gastro-Enterology and Proctology and the Section on Surgery, General and Abdominal, at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

[1] Drs. R. H. Miller, Boston; John Stewart, Buffalo; Champ Lyons, New Orleans, and Richard Warren, Boston.

health and be prepared to advise and carry out whatever additional surgical treatment is necessary to accomplish this end; *in addition, he and the internist must* assume responsibility for aiding the patient in the readjustment necessary to a productive and happy life.

### INDICATIONS FOR OPERATION

*A. Ileostomy.*—There is no decision in surgery which may be more difficult to make than the decision for or against the performance of an ileostomy for a patient with ulcerative colitis. *Before advising this operation,* proper consideration should be given to the psychologic as well as to the medical indications. If the operation is to be successful, not only must the disease be controlled, but the patient with that disease must be satisfied and grateful for the health which has been regained. It is our firm belief that until the patient recognizes need for the help which ileostomy offers and unless he has a real incentive to live and to overcome this new handicap, ileostomy may be inadvisable even though the medical indications seem clear.

We may roughly divide the indications for ileostomy into three groups as follows:

1. Life Saving: This group includes those patients with an acute exacerbation (or with an acute fulminating disease) *in whom medical treatment has failed* to bring about a remission. Perforation of the colon is not an unusual complication in the more acute form of the disease and is an indication for immediate ileostomy. It is possible that with streptomycin and other agents an occasional life may be saved by prompt diversion of the fecal stream and intensive antibacterial therapy. The real difficulty comes in determining whether or not medical treatment has failed, in the cases of less acute disease. For a patient who under ideal hospital conditions has received thorough medical treatment to combat existing infection, anemia and nutritional disturbances and who has failed to respond to such treatment, ileostomy *may prove a life-saving* procedure. If this is postponed beyond a reasonable period, irreversible changes or perforation may take place and the opportunity for a successful result following ileostomy will have passed. The surgeon should be asked to see these ill patients in anticipation of later surgical treatment in order that he may follow the progress of the patient and better judge the time at which ileostomy, *if necessary, shall be done.* We have found it helpful in the management of our cases to make a definite deadline for such medical management. At the end of a specific period, be it one week, two weeks, longer or shorter, the entire problem is reviewed and a decision made for or against operation; if operation is postponed, another period is laid down, at the end of which the entire problem must be reevaluated. Only in this way has it been possible for us to avoid indefinite postponement of an indicated procedure.

Recurrent massive hemorrhage is one of the most serious of the complications of this disease. It is always a grave occurrence, and, if the hemorrhage is massive and recurrent, it is of great importance that ileostomy not be postponed too long. Moreover, it is our experience that ileostomy alone will only rarely result in the control of this hemorrhage. We have found it necessary to proceed with extirpation of the bowel to control the hemorrhage. The mortality in this group of patients will, of necessity, be high, but, by aggressive action not too long postponed, an occasional life will be saved, which on more conservative treatment would have been lost.

2. Polyposis: The development of multiple pseudopolyps or true adenomatous polyps is in our judgment an indication for a graded operation, consisting of ileostomy and later colectomy to prevent the development of cancer.

3. Intractable Chronic Disease: The patient who is chronically ill with the disease, a semi-invalid although ambulatory, and unable to carry on with the normal activities for one of his or her age, has not had a satisfactory response to medical treatment. Ileostomy, followed by colectomy if necessary, will usually restore such a patient to a normal state of social usefulness. Also classed as unsatisfactory are the results following medical treatment of those patients who, in spite of good care, continue to have recurring acute or subacute exacerbations, requiring frequent hospital admissions; these patients are neither physically nor economically secure and should not be regarded by the internist as in a state of satisfactory control.

Postoperatively, the patient will usually follow one of four courses. He may have a remission of indefinite length and for all practical purposes may be considered to have had a complete symptomatic cure, or the response to ileostomy may seem initially satisfactory, but at some later time there is a reactivation of the disease in the colon. There will be a third group of a relatively few patients who derive inadequate benefit from ileostomy; they are improved, but do not fully regain their normal weight and strength. Finally, there is a small group of patients who show no apparent benefit following ileostomy. This group includes certain of those with the acute fulminating type of disease which goes on to a rapidly fatal outcome and the patients with massive hemorrhage for whom further aggressive surgery is essential.

*B. Colectomy.*—The indications for colectomy are not difficult to determine if one accepts as the objective of surgical treatment the complete physiologic or anatomic elimination of the disease. If this is not accomplished by ileostomy alone, further surgical treatment is essential. The indications may well be grouped under the following headings:

1. Polyposis: Because of the increased incidence of carcinoma in patients with chronic ulcerative colitis and because of the fact that polyposis is a particular predisposing factor, we believe that such a patient should have removal of the diseased colon. As in so many of the phases of colitis, the conservative measure is the aggressive one here. In several instances suspect colons removed as cancer prophylaxis have proved to have established carcinoma; with ileostomy the patient cannot exhibit the early symptomatic manifestations of cancer of the colon and roentgen examination is often painful and unsatisfactory for detailed interpretation.

2. As a Life-Saving Procedure: Recurrent massive hemorrhage which does not stop after ileostomy may require early removal of the colon and the rectum. Occasionally ileostomy fails to precipitate a remission in the acute form of the disease, or an acute exacerbation of the disease following ileostomy will not respond to medical measures, and removal of the colon is necessary in an effort to prevent death from continued activity of the disease in the colon.

3. Unsatisfactory Response to Ileostomy: In those patients whose response to ileostomy has been less than completely satisfactory and in whom careful studies fail to show any other cause for failure to gain satisfactorily in weight and strength, the disease in the colon may be considered to be the limiting factor, and for these patients colectomy is indicated.

4. Reactivation of the Disease in the Colon: One exacerbation of the disease in the colon following ileostomy is a positive indication for colectomy. In our earlier experience, we allowed a patient at least two recurrences before advising the removal of the colon. Because of the seriousness of an acute exacerbation after ileostomy and because on one or two occasions the desire to postpone colectomy nearly cost the life of the patient, we have now come to feel that a single exacerbation is a positive indication for an elective colectomy. It should be done during the same hospital admission for which the patient has been treated for the recurrence.

5. Miscellaneous: There are several other indications for colectomy. A few patients with chronic secondary anemia which would not respond to iron or to other treatment have been restored to health by removal of the diseased colon. Chronic infections of the skin which have failed to respond to treatment have healed promptly when the diseased colon has been taken out. We have also advised colectomy in a few patients with a second chronic disease for which there was no specific treatment, such as minimal lesions of pulmonary tuberculosis and, more particularly, rheumatoid arthritis. Some, but not all, of the latter group have been markedly helped by the elimination of the diseased bowel.

*C. Proctectomy.*—It is not our policy to remove the rectum as a routine procedure. If a specific treatment for this disease becomes available, a few of our patients may ultimately have an anastomosis between the terminal ileum and a functioning rectum. For this reason, the lower segment of bowel is maintained unless there is some definite indication for its removal. The indications for the removal of this segment of bowel are not difficult. Polyposis is a definite indication. Activity in this segment of bowel which persists or recurs after the colon has been eliminated is also an indication for its removal. Finally, local sepsis around the perianal area originating in this bowel can be eliminated only if the involved bowel is removed.

## HOSPITAL STATISTICS

Within the scope of this study, 149 patients with ulcerative colitis have had an ileostomy as the initial (or only) procedure in an attempt to control or cure the disease. Twenty-two, or 14.8 per cent, died after operation. The majority of these deaths have resulted from unchecked advance of the disease as manifested by perforation or hemorrhage, or both, in the early postileostomy period. They do not represent death from ileostomy per se but, instead, mortality from ulcerative colitis beyond help from ileostomy.

Eighty-seven, or 68.5 per cent, of the survivors of ileostomy have had a subtotal colectomy at intervals varying from months to twelve years after the ileostomy. The mortality was 6.9 per cent. Thirty-three or 40.7 per cent of those surviving colectomy have had removal of the rectal stump by the combined abdominoperineal route with a mortality of 3.3 per cent (the table).

Only 5 patients have had gastrointestinal continuity reestablished. Three of these failed to respond favorably. Two who had a second ileostomy are now in excellent condition at this time, and the third, who nearly died of an acute exacerbation of the colitis immediately after closure, remained a chronic invalid from the disease and recently died following operation for a brain tumor. One patient, whose colectomy was done in 1939, had an anastomosis between the terminal ileum and rectal stump seven years later and has remained well for two years. Another had a subtotal colectomy and ileosigmoidostomy one year ago, five years after the ileostomy. Although in good health, this patient feels that he was better with the ileostomy than since he has been reconnected.

The many problems which have arisen in the hospital care of these patients will not be discussed in this paper. The care of the ileostomy, the problems of fluid balance and nutrition and subsequent operations for the disease or for the complications of previous surgical treatment (especially prolapse or stenosis of ileostomy and intestinal obstructions) place heavy obligation on the surgeon and challenge his skill in the art as well as the science of surgery.

*Ulcerative Colitis, Massachusetts General Hospital, 1932-1947*

| Operation | No. of Cases | Deaths | Mortality, Percentage |
|---|---|---|---|
| No operation | 229 | 12 | 5.0 |
| Ileostomy | 143 | 25 | 17.4 |
| Subtotal colectomy | 87 | 7 | 8.0 |
| Proctectomy | 33 | 1 | 3.3 |
| Restitution of continuity | 5 | 0 | 0.0 |
| Total cases | 372 | 45 | 12 |

## LATE RESULTS

Complete elimination of the symptoms of a nonmalignant disease such as ulcerative colitis would be an empty victory were the patient not restored to a position of comfort, usefulness and ability to enjoy most of the satisfactions and pleasures of life. To most of us who enjoy good health, ileostomy means a life of social ostracism and economic dependence. "I would rather be dead than have an ileostomy," is a statement not uncommonly heard. Does one hear such statements from the patients themselves, or are they adjusted to the inconvenience of the ileostomy, philosophically accepting it as a solution to the crippling disease from which they formerly suffered? We have sought the answer to these and related questions by submitting a questionnaire to each patient which left him considerable latitude for an expression of opinion.

Questionnaires were sent to one hundred and ten patients who have left the hospital with an ileostomy.

We have had replies from all patients or their families. Five have died natural deaths from other diseases. One died two days after an overdose of a barbiturate.[2] Of the 104 patients whose present condition is known, 50 are males and 54 are females.

*General.*—Eighty-eight or 84 per cent of these patients consider themselves to be in good health at the present time. Of the remaining 16 patients, 4 are crippled by other conditions; 3 undoubtedly have active disease in the colon or some abnormality of the stoma which should be corrected surgically. Of the 9 who have not become adjusted to their ileostomies, it is probable that 5 may be greatly helped by a change in appliance or ileostomy outlet. In interpretation of these data, it is of importance to realize that this classification is based on the opinion of the patient and is, therefore, a composite of emotional as well as the physical factors.

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[2] This was officially reported by the medical examiner as accidental death.

*Economic Status.*—Ninety-seven per cent of the 104 patients are working as housewives, are in schools or are gainfully employed. There is a wide variation in the types of occupation—mill workers, truck drivers, a college professor, school teachers, dentists, physicians, medical secretaries, salesgirls, etc., with a tendency to avoid heavy labor for fear of injury to the ileostomy or of displacing the apparatus. Seventy-five per cent feel that their earning or working capacity is not lessened by the ileostomy.

*Social Activities.*—Sixty-seven per cent feel that their social life is satisfactory and not adversely affected by ileostomy. Of the 32 patients who feel that there are limitations, 13 referred particularly to problems arising when spending the night with friends or going on camping trips, or to activities where lack of facilities or too intimate contact with others prevented proper attention to the ileostomy. There is a surprising freedom on the part of these patients to enjoy most of the common activities, including athletics.

*Marital Status.*—Seventy of the patients are married; 34 are single. Twenty-three have married subsequent to the operation, and 1 more of the young women is to be married in the near future. Five have gone through one or more pregnancies subsequent to ileostomy. An understanding husband or wife and the satisfaction and responsibilities of children are undoubtedly important stabilizing factors in the lives of these patients.

### ILEOSTOMY PROBLEMS AS SEEN BY THE PATIENT

The results of a study such as this are dependent on the total response of the patients to the treatment given. It would seem fitting, therefore, that some of the text be written by the patients themselves.

*Readiness to Accept Ileostomy.*—We have previously referred to the importance of the psychologic as well as the physical indications for ileostomy and have suggested that the patient who has really known the handicap of the disease is in the best position to be grateful for ileostomy and would, therefore, adjust more readily to it.

M. W. was 21 years of age when ileostomy was performed. Two years later, a subtotal colectomy was necessary because of recurrent activity. At the present time her life is "happier and more complete than it has ever been. None except a colitis sufferer will ever know the terrible insecurity that goes with the inability to control movements and the awful all-gone feeling that is the result of loss of appetite and accompanying anemia. These I had for years (about ten) and can trace the present ideal situation only to the alleviation of the colitis through the ileostomy." She is now 28 years old, working as receptionist for a publisher, and evenings enjoys the usual social activities for one of her age.

E. M. writes: "Like all people, I fought off an operation as long as possible. When it became necessary after eight years of colitis, I accepted it with the feeling that my usefulness was over. But I have found quite the opposite to be true. When I look back on the years that I dragged around with colitis, I realize that I am the luckiest person to be able to live a completely normal life again and I wish I had had the operation long before I did."

The tale of R. G. epitomizes some of the reasons these patients have for gratitude: "Mine was a tough case of colitis. I could not go anywhere or do much of anything. There was not much control of the colon. I did not dare go to a show, or any outside entertainment or visit anyone. If I went in my auto, I had to take a bed pan along. The year I went to Florida, I went riding and driving through most of the big cities sitting on a bedpan. The ileostomy has changed all this. I do most anything I want to now. . . ." The patient goes on to state that he is still somewhat bothered by arthritis; he should be surveyed for the possibility of further colonic removal with this in view.

Adjustment is not so easy for one taken acutely ill, whose medical past is one of good health. To this group, particularly, there must be some real incentive which makes life worth while even with a handicap. Mrs. I. S. was 38 years old when she was taken acutely ill after childbirth. She did not respond to medical treatment, and ileostomy was done as a life-saving procedure. She had a dramatic response, became completely well and remained so for twelve years (1947), when an acute exacerbation of the disease occurred. Again it resisted all treatment. Subtotal colectomy was carried out while she was acutely ill. To her "the whole idea of living with an ileostomy was terribly repulsive," but she has been "most grateful that this operation was performed, for it has enabled me to bring up our three children and share in their activities as well as to share my husband's interests. At the time of my illness in 1932, the children were only 7, 4 and 1 month old. Their need of me was a powerful incentive to live and make the best of things. Even that incentive would not have been helpful if it had not been for unfailing cheerfulness and encouragement of my husband—not all patients are so fortunate, and I am not sure what my reaction would have been in other circumstances."

*Adjustment to the New Mode of Life.*—Regardless of the relief from invalidism or incentive to get well, adjustment to the altered way of life is not easy. Many patients, in writing, stress the encouragement and help that come from early interviews with patients who are well adjusted. The importance of confidence in one's self, and encouragement from those who know, are well brought out by one of our patients (J. L.), a young dentist who had an ileostomy performed four years ago at the age of 25. "I feel that once the mental shock which goes hand in hand with the first realization that you have an ileostomy has been overcome, the rest is comparatively simple. I know as far as I was concerned, my mental attitude toward the whole business was one of utter defeat and visions of loss of everything I held precious as far as having a family, getting married, engaging in sports, etc. However, after gradually getting used to the ileostomy (mentally, that is), I realized that I was not handicapped as far as these things were concerned. At first, I feared everybody could see I had an ileostomy. This was dispelled when I mingled with crowds and heard no comments. Secondly, I feared getting married because I would not be able to perform my marital duties; this was wrong. Then I felt I could not run my practice as a dentist; this was wrong. I found that in every instance, once I had overcome the idea of having had an ileostomy, I could undertake all that I could before." He then stresses the help that would come from a visit before leaving the hospital by "another ileostomy patient who has successfully climbed all of the hurdles."

W. S., an attractive young woman of 23, who has had her ileostomy eight years, writes, "I am at present leading a completely normal life but it has been a fight in my case with a lot of trouble and and heartbreaking experiences. I'm a successful model now. . . . but there is still in the back of my mind the wish that I could be connected up again—and that perhaps some day a different cure, one not so ugly and hard to take will be found."

M. H., a university professor, writes: "I have lived with my ileostomy for fourteen years already and have had a full, active, and happy life. I do not mean to infer that living with an ileostomy is as good an arrangement as nature provides. All I want to say is that one can manage very successfully with one. I have traveled everywhere with my ileostomy. . . . It has enabled me to do creative, constructive work and to bring up a fine family. . . ."

A. P. writes: "Put me down as the A-1 ne plus ultra, super duper fan of ileostomy. . . . I am unbelievably better fitted to engage in any activity, mental or physical, than I was during the years I had colitis."

Unsatisfactory adjustments have occurred in 10 of our patients for a wide variety of reasons. The appliance itself may be a source of difficulty. The skin-cement type of bag in rare cases fails to give satisfaction. R. S. writes: "The whole thing is a mess, whatever I do. If it could only be regulated! I just can't stay on a diet, I love all kinds of food. . . I tried the new bag, cementing it on, but my skin couldn't stand the cement, it was too irritating." In the future, this patient should be encouraged to maintain herself on a more rigid diet despite her omnivorous tendencies; experimentation with various types of skin cement is also in order.

The most unsatisfactory adjustment is apt to be found in the uneducated man, of low native intelligence and ingenuity, especially if his work is heavy outdoor work not easily interrupted for maintenance of ileostomy hygiene. H. G., a farmer and lumberman, writes: "I cannot do everything that the rest of the crowd does. . . . soon get the name of a poor sport. . . . I don't believe anyone can have an operation like this and still lead a normal life. If I had to do it again in the same circumstances . . . I would never have an operation like this." Despite his handicap, the patient was married after ileostomy and has fathered 6 children in rapid succession.

*Marital and Sexual Problems.*—Sex problems are of a peculiarly complex type with ileostomy; they may be further complicated by proctectomy.

In the male, problems center themselves around the question of social acceptability for sexual contacts and intercourse; and, in addition, the physiologic possibility of impotence resulting from pelvic nerve interruption in proctectomy. In the female, social acceptability for sexual contacts and intercourse is also a problem; and, in addition, obstetric problems arise incident to ileostomy and to the reconstructed pelvic floor following proctectomy.

In the case of most of the married men, the wife has been an understanding partner and the relationship has not been altered.

W. C., for instance, writes: "My wife thinks nothing of it, and it hasn't changed her actions towards me one bit."

One wife writes: "Our sexual relations are better than they were before the ileostomy because of the colitis condition," pointing up the fact that the untreated disease is hardly one to encourage normal sexual activity. She continues: "It took me many months to get used to this and before I could bring myself to having marital relations again. I feel that if something other than a pouch were invented for use during coitus, a marriage could be happier. . . . something should be made that is flat instead of a bag." This couple could be made more comfortable by education in use of the newer ileostomy appliances.

For unmarried men the problem of "telling the girl friend" has not been an easy one, but has been surmounted in most cases, often with the help of the surgeon or internist, and a fruitful marriage has followed.

C. A. was married despite ileostomy and colectomy and has fathered 3 children; the sexual act is quite normal.[3]

For the unmarried girl, the problem of informing a prospective mate of the true state of affairs seems almost unsurmountable in occasional instances. Feelings of pride are in conflict with the humiliation of revealing an ileostomy to the prospective mate.

Patient N. H. illustrates some of the aspects of failure in sexual adjustment. A slightly built girl with little native drive and ambition, she has several times encouraged men of her acquaintance, only to break off social relations when intimacy threatened revelation of her ileostomy. She not infrequently weeps in discussing these matters, and will not accept the solution of making a clear understanding with her "boy friend" despite the knowledge that others have done so. This conflict persists. She writes that her friends do not know of her handicap . . . "I keep it to myself and do not like to have anyone know . . . Marriage is a hard life to lead with an operation like this. So far I have no intention of marriage at all."

Another girl, R. S., has similar feelings. . . . "I would like to get married, but I have a fear of being turned down. . . . especially if he should know I cannot bear him children. . . . if I went out and someone wanted to be affectionate, I am afraid."

In the case of patient D. L., a different variation is found. A Jewish girl of intelligence, insight and attractive personal appearance, she avoids social contacts which might lead to engagement or physical intimacy because of a deep conviction that she should not "foist herself" on a husband, even though he were willing, "any man deserves a normal wife. . . . why should he have me?" expresses her reaction. She writes, "Speaking for myself, truthfully, it's a curse! My ileostomy is inclined to be runny, and when it's in good working order, I am very aware of odors."

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[3] In performing proctectomy by the combined abdominoperineal route in these cases, considerable care has been exercised to keep the dissection close to the bowel and to avoid undue nerve injury. At this writing, we are not aware of impotence in young males from this procedure, although we recognize its occurrence following the more complete dissection for cancer.

Obstetric aspects of ileostomy have not been fully explored. If the colon is quiescent and the patient has adequate insight into the problem presented, pregnancy can be carried to term and pelvic delivery effected.

Mrs. D. C. has had two successful pelvic deliveries despite ileostomy and colectomy. In other instances, smoldering colonic activity often lighted up by pregnancy has been an indication for the termination of pregnancy or contraceptive advice.

The problem of the obstetric uterus after combined abdominoperineal proctectomy needs more clarification. Mrs. A. G., recently married and three months' pregnant with a much desired child, underwent abdominal hysterotomy to empty the uterus because of the suspicion that posterior fixation might lead to thinning of the anterior wall and the threat of rupture. At operation the uterus was found to be entirely free in its peritoneal surfaces; it is quite probable that satisfactory completion of pregnancy could have been carried out in this case, as it has in others after removal of the rectum for cancer. It is of interest that this patient (Mrs. A. G.) had not even met her future husband at the time of ileostomy, but by patience combined with intellectual fortitude overcame her hesitancy to tell him of it, secured his confidence and has been happily married.

Limitations of space do not permit more extensive quotations from comments of the patients; detailed analysis of their present status has provided the basis for the foregoing statistical analysis.

## CONCLUSION

Careful selection of the patients for ileostomy and of the time at which it is done, establishment of a satisfactory stoma, physiologic or anatomic elimination of the disease, the selection of a proper appliance and instruction in its use are responsibilities of the surgeon in dealing with ulcerative colitis. With this help and with aid and encouragement from patients who are well adjusted, the person so unfortunate as to require a permanent ileostomy may be assured the security of good general health and a respected place in the economic and social life of the family and community.

The satisfaction and socioeconomic rehabilitation produced by ileostomy are gratifying to patient and surgeon in 70 to 90 per cent of patients, depending on the criteria used. The most unsatisfactory life adjustment is made by the outdoor-working laborer (male) and by the unmarried woman who finds in ileostomy a barrier to the inception of sexual relations.

This fact should be taken into account when heroic methods of closing or avoiding ileostomy are under discussion. "Ileostomy is not the end of everything, but rather the beginning of a new life slightly altered." (J. L.)

## ABSTRACT OF DISCUSSION

Dr. Clarence Dennis, Minneapolis: The differences of expressed opinion are due to the fact that the etiologic factors underlying these diseases are unknown. We have seen cases in which sensitivities have played a dominant role, others in which dietary or traumatic factors dominated or in which some specific infection participated, and still others in which personality maladjustments have seemed most important. The medical and surgical therapy at the University of Minnesota has included each of these factors. In a twelve year survey it was found that 72 cases treated primarily conservatively suffered an initial mortality above 20 per cent. The corrected figures show half the group dead in five years, two thirds dead in ten and only 1 of the 8 known survivors at that time in satisfactory condition. Among the 41 treated surgically in this period, the initial mortality was 7.3 per cent, and 75 per cent were known to be alive at the end. Most successful was ileostomy followed by one stage colectomy. The surgical mortality of colectomy was zero, and 28 of the 30 patients are alive an average of four years afterward; of these, 22 are well and active. The 10 deaths in the 41 surgical cases were half due to cancer. Routine colectomy, therefore, should cut our over-all mortality in half. It has already twice removed subclinical unsuspected lesions. In 15 per cent of our five year cases cancer of the colon has developed. In another 15 per cent cirrhosis of the liver has developed. Two years ago, Dr. C. J. Watson suggested vagotomy in a patient suffering enteritis in the remaining 6 feet of small bowel. The response led to application in 30 cases. Three fourths of the patients are improved or entirely free of symptoms. The rationale rests on (1) relief of enteric spasm, (2) reduction of motility of the entire intestine, (3) the apparent blocking of the rectosigmoid response to emotional stress and (4) the observation of Lillehei and his associates that the fatal diarrhea seen in dogs after mesenteric ganglionectomy does not occur if the vagi are divided. A favorable response in the proctoscopic and roentgen appearance is seen in most of the cases within a few weeks. We do not know how to select the cases that will respond best and we do not know how long favorable effects will endure, or whether long term harmful effects will appear. The procedure, therefore, should be regarded as under scrutiny and not yet ready for general application.

Dr. Burrill B. Crohn, New York: Regional ileitis is the popular name assumed by most writers and thinkers; there is no question but what the whole small bowel may be involved. In the recent survey of my cases—about 300 cases of ileitis—260 of them involved locally the terminal ileum proximal to the ileocecal valve, 35 were of ileojejunitis and 22 cases were combined cases involving ileum and colon. That ileitis and colitis are essentially the same disease and belong more or less in the same family I feel has justification. These diseases are all diseases of young persons. That is one reason for believing that they have a common factor. Ileitis, jejunitis, appendicitis and ulcerative colitis are all diseases that occur essentially in young persons with driving personalities. The mixed forms of the disease again bring to mind the fact that these diseases may have a common factor. The more one sees of these mixed forms, such as involvement of terminal ileum and right side of the colon, or the terminal ileum and the descending colon or sigmoid, or terminal ileum and high jejunum, the more one is made aware of that fact. After resection for granulomatous disease, a recurrence may take place in either the small or the large intestine. In one family of 4 siblings, 1 had duodenal ulcer, one a segment right-sided colitis, 1 universal colitis and 1 regional ileitis. It may be possible that this is not initially a disease which is initiated by a psychic frustration or psychic trauma, but to treat or attempt to treat ulcerative colitis by psychoanalysis in the presence of a temperature of 103 F. and toxic manifestations and severe diarrhea is to waste one's time and to waste the patient's time and money. Once the conflagration has been started, once the intestine has become ulcerated, the time for the role of psychotherapy has long since passed. To attempt to treat that patient and not have a rapport with the patient, not to know whether the patient is sympathetic with you, leads frequently to frustration. To cure ulcerative colitis one must be in perfect sympathy, psychic sympathy with the patient.

Dr. Lester R. Dragstedt, Chicago: Dr. McKittrick has given us a thoughtful and adequate discussion of the surgical treatment of chronic ulcerative colitis. With him, I am persuaded that diversion of the fecal stream by end ileostomy does more for patients with the severe form of this disease than anything else that I know of save total colectomy. The high mortality that was formerly associated with ileostomy in the severe forms of colitis has been markedly reduced by preoperative therapy, so that it now constitutes a less serious objection to this method of therapy. Excoriation of the abdominal wall has remained, however, a troublesome complication. To ameliorate this condition, some ten years ago I introduced a type of end ileostomy operation that has given us increasing satisfaction and has also found favor with Dr. Bargen at the Mayo Clinic and Dr. Sanders of Memphis. The ileum is transected just proximal to the ileocecal valve and the distal end closed. The proximal portion is brought out through a stab wound in the abdominal wall for a distance of 4 inches (10.2 cm.) and is covered with a skin graft. The graft takes readily. The ileum may then be trimmed to the desired length to permit discharge of the ileal content into the apparatus without coming in contact with the skin. I am very interested in Dr. Dennis' experience with vagotomy in the treatment of chronic ulcerative colitis. He should be encouraged in this type of work. I should like to point out, however, that we do not have in this case the physiologic basis for vagotomy that we have in peptic ulcer. In the latter instance we know that an excessive secretion of gastric juice can produce the disease, that an excess of secretion of gastric juice occurs in patients and that this can be reduced by sectioning the vagus nerve. In chronic ulcerative colitis we have some evidence that central nervous system factors exert perhaps an inciting or aggravating effect, but we have not succeeded in producing the disease in experimental animals. I should like to refer to a fact that is a little discouraging to me; namely, that functional bowel distress, where the role of the central nervous system seems to be definite, is seldom followed by chronic ulcerative colitis.

Dr. Everett D. Kiefer, Boston: The concept that regional ileitis and ulcerative colitis are the same disease, differing only in the level of the intestinal tract which is involved, is an attractive one from the clinician's point of view. Acute enteric infections, bacillary dysentery, amebic dysentery, food allergy and emotional trauma have all been indicted as a cause of ulcerative colitis. However, the common denominator, possibly a constitutional factor, which determines why one case in an epidemic of acute colitis goes on to chronic ulcerative colitis while in 99 others there is complete recovery, remains a mystery. It has often been said that ulcerative colitis tends to begin in the rectum and progresses in a retrograde direction over to the cecum. Actually, I have observed this in only rare instances. A patient usually presents himself with involvement of either a segment of the bowel or the entire colon, and subsequent roentgen and proctoscopic examinations may show variations in the degree of involvement, but the anatomic limits of the diseased area remain exactly the same. There is no specific or reliable medical cure for either regional ileitis or ulcerative colitis. Improvement in nutrition, control of the diarrhea, treatment of the anemia, hypoproteinemia and secondary function help to promote remissions of active disease and adjustments of function to the damage already done. It is more accurate to speak in terms of control of the disease rather than cure. It has been our experience that in approximately one half of the patients with ulcerative colitis the disease can be controlled by conservative measures, but the other half go on with either partial or total disability, and a large percentage will eventually die of the disease. I would emphasize the most important indication for surgical treatment; namely, chronic invalidism. The clinical results which follow ileostomy in these cases are usually striking, with the patient returning to his occupation and normal place in society. The price that the patient must pay for the cure of his disease is permanent ileostomy. To the layman this price seems a horrible one. Our experience, however, has been surprisingly happier, confirming the experience reported by Dr. McKittrick. With proper selection of cases the patients and their families are grateful and consider their relief well worth the price. Recently Dr. David McKell, of our clinic, has questioned 84 patients with permanent ileostomies; 79 were pleased with the results and said that they wished the ileostomy had been done sooner, and only 5 regretted having it done. When cases are selected judiciously, surgical treatment offers more to the colitis invalid than any other treatment. The therapy of chronic regional ileitis is even more unsatisfactory than that of chronic ulcerative colitis. Since medical management is ineffective in many cases of chronic disease, surgical treatment has been employed. However, recurrences have plagued the surgeon.

Dr. J. H. Fitzgibbon, Portland, Ore.: I should like to make a small contribution to the confusion in regard to etiology, by bringing up again the subject of familial incidence which Dr. Crohn touched on. Little has been written about familial incidence. I think it might be worth while to tell about one family with which I have had intimate contact. There were 4 brothers, 1 of whom died of ulcerative colitis. The second, the first member of the family whom I saw as a patient, had been treated previously and operated on for regional ileitis. He later died, after his second or third operation for regional enteritis. Two brothers are now under my care. One has had an ileostomy which he feels saved his life; the other has intermittent flare-ups of ulcerative colitis and had a fistula operated on recently. One sister died of ulcerative colitis. Another feels that her life was saved a year ago when an ileostomy was done. I have treated a cousin—a female—with ulcerative colitis, on whom an ileostomy was done. She feels it was lifesaving. Her son, a boy of 10 or 12, was seen early in ulcerative colitis and has made a splendid response to medical treatment. In regard to the psychogenic aspects, one member of the family insists that his flare-ups have been assocated with emotional tension.

Dr. A. F. F. Andresen, Brooklyn: The cause of ileitis and ulcerative colitis is not entirely unknown. While many cases are due to specific organisms, in our experience about 60 per cent have been proved to be due to allergy. The allergic reaction may be due not only to sensitization to food or other ingesta but to bacteria (as in focal infections) and to inhalants (pollens and the like). To produce the marked reaction in these diseases, the exciting cause must be constantly operative; that is, the food or other agent must be eaten, inhaled or absorbed every day. It is not easy to establish an allergic cause for ulcerative colitis. It requires much patience and perseverance in working out the case, but with this principle carried out we have been able to clear up the disease and to avoid operation. The results have been as good as with any other allergic condition. I do not believe that psychosomatic surgery—that is, vagotomy, which is clearly a psychosomatic approach from the surgical standpoint—is of any particular interest in a case of this sort, and I believe that other operations for ulcerative colitis should be done only for complications, even though we have been told that ileostomy is such a great incentive to matrimony.

Dr. Leland S. McKittrick, Boston: I should like to thank the discussers for their contribution to this program. I have only one additional comment. Much has been said about the similarity between so-called regional enteritis and what I understand as ulcerative colitis. I do not feel competent to offer any contribution relative to the similarity or dissimilarity of these two diseases pathologically, but I do know that they are quite unlike clinically. We have great confidence that we can offer complete and lasting freedom from the disease to most patients who survive the necessary operations for ulcerative colitis, and to the patient with the disease which I know as regional enteritis, surgery offers the hope, but not expectation, of a cure. They may be similar pathologically, but they are certainly different therapeutically, and, after all, the patient comes to you and to me for therapy.

# IDIOPATHIC ULCERATIVE COLITIS

## Newer Concepts Concerning Its Cause and Management

SIDNEY A. PORTIS, M.D.
Chicago

Early uncomplicated and localized idiopathic or nonspecific ulcerative colitis, I think, originates in early childhood, although the pathologic or pathologic-physiologic picture may not become evident until adolescent or adult life. The fact that the changes in the bowel wall begin for the most part in the rectum and sigmoid and spread upward to include the ascending limb of the splenic flexure has been passed over lightly in the discussion of this subject. There are many etiologic conceptions and varied therapeutic approaches. I have never been convinced that any specific organism is the cause.

Five years ago I became interested in the increasing reports in psychiatric literature of presumable cure of uncomplicated and early ulcerative colitis. Psychiatrists claimed they could produce a lasting remission; this I consider a challenge. What did psychiatry accomplish that medicine could not? I could conclude only that the treatment had normalized the physiologic picture of the gastrointestinal tract, especially of the sigmoid and rectum, and that this had led to healing.

I directed my attention to a limited portion of the colon which became ulcerated. The proctoscopic and the roentgenologic picture are pathognomonic, with tubulization of the rectosigmoid and even the descending colon. The haustral markings are lost; the outer aspect of the bowel wall here has a "feathery edge" or fine "saw-tooth" configuration. Pneumocolon shows fine flecks of retained barium if ulceration has taken place. (Air must not be forced into the colon with too great pressure, since perforation has resulted from too much and too vigorous inflation.) With the foregoing objective observations, I had a tangible beginning for observing and evaluating the progress of the disease.

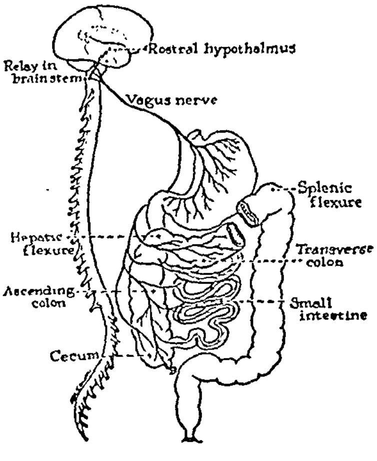

Fig. 1.—Vagal innervation of the gastrointestinal tract up to the ascending limb of the splenic flexure.

Questions to be answered were: Why does this disease begin in the rectum and sigmoid and spread upward diffusely, with no portion of the mucous membrane in the involved areas escaping pathologic change? What happened to the mucous membrane here which lowered resistance and led to ulceration? The normal protective mechanism must have been interfered with to allow the disease to develop.

Most doctors believe today that this disease which starts in the mucous lining of the bowel wall spreads to the deeper layers. Apparently this inflammation is not hematogenous or thromboembolic. The thrombophlebitis seen on microscopic section of the colon is retrograde and not primary. The embolic manifestations or thrombi in the small arterioles feeding the gut have not been established as primary. The organisms found on culture from the stools or on direct smear are as a rule normal inhabitants of the fecal flora.

Therefore, this disturbance in normal physiologic balance must have started in the mucous lining. Several methods of approach were possible. If the psychiatrists were correct in their observations, then the first inquiry had to do with the nerve supply of the gastrointestinal tract, especially the colon.

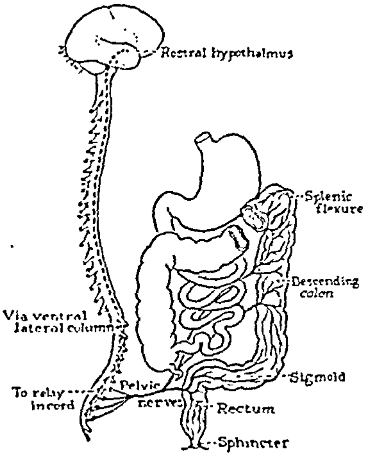

Fig. 2.—Sacropelvic innervation of the colon from the rectum up to and including the ascending limb of the splenic flexure.

Anatomically, the colon has four different sources of nerve supply: (1) the vagus nerve (cholinergic), whose parasympathetic fibers supply it from the cecum up to the ascending limb of the splenic flexure (fig. 1), (2) the sacropelvic (cholinergic) nerve, which supplies the colon from the end of vagus innervation up to and including the rectum (fig. 2), (3) the sympathetic (adrenergic) nerves which supply the whole colon and are derived wholly from the spinal cord and (4) Auerbach's plexus (cholinergic), that intermediary plexus which transmits impulses to the cellular structure.

In this disease the parasympathetic (cholinergic) system—namely, the vagus and sacropelvic nerves—is most important. The vagus arises from the medulla and through its branches directly innervates the bowel. The sacropelvic nerve is formed into a nerve from the central area of the cord—between the second and the fourth sacral—and supplies the pelvic organs, including that portion of the colon described. Since emotional stimuli are transmitted over both these nerves, the end physiologic effect of overt stimulation is a disturbance in physiologic balance. The motor nerve, e. g., the vagus, causes contraction and peristalsis of the small intestine and relaxation of the ileocecal valve. The colon in turn has increased motility, for the same reason, up to and including the ascending limb of the splenic flexure. The sacropelvic nerve has the same physiologic effect on the distal part of the colon as the vagus nerve has on the ileocecal portion.

I have never observed a case of ulcerative colitis in which motility of the descending colon, sigmoid and rectum was normal, even though the small intestine and the colon up to the ascending limb of the splenic flexure were hypermotile. Therefore, it is important to recognize that in the early and localized form of this disease the sacropelvic nerves and their innervations in these structures are a prime source of the physiologic disorder.

Apparently, this disease is limited in the early stage to that portion of the colon innervated by the sacropelvic nerves (figs. 3 and 4). Why does it not invade

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From the Michael Reese Hospital and the College of Med Illinois.

Read before at the Ninety-Seventh Annual Session of the on, Chicago, June 24, 1948.

the part innervated by the vagus? Certainly most physicians have seen the entire colon involved in the chronic form. It would appear that altered emotional stimuli are transmitted principally over the sacropelvic nerves at the outset. Yet the same physiologic abnormality can be produced at the nerve endings of the mucous lining of the whole gastrointestinal tract. It must be postulated that in the early stages a protective mechanism exists in the mucous lining of that portion of the colon innervated by the vagus nerve, while the portion innervated by the sacropelvic nerves is more susceptible. The altered emotional stimuli are transmitted over both nerves. After the disease progresses beyond the splenic flexure into the transverse colon, vagal influence with decreased protection may play a similar role.

The concentration of pancreatic enzymes in the lower part of the ileum and cecum is of a high titer. There must be some attenuation or binding or destruction of these enzymes as they pass down through the colon, so that by the time they reach the descending colon they do not have the same digestive activity. A normal alkaline stool does not cause burning or smarting at the anal orifice if the gastrointestinal tract has normal motility. During an attack of acute diarrhea there is usually smarting or burning. If rapid motility of the gastrointestinal tract persists long enough, the skin about the anal orifice becomes red, painful and swollen like that about an ileostomy wound. The fresh skin about an ileostomy, however, has a tendency to bleed easily: this must be due to a difference in concentration of pancreatic enzyme. When the stools of diarrheal patients are examined for trypsin, the titer is never so high as that of fecal matter from an ileostomy. The concentration of trypsin in the intestinal contents pouring out of the ileum of a recent ileostomy patient is 50 times that in the stools of a patient with ulcerative colitis. Later on, as the ileum assumes some of the function of the colon, the concentration may drop to 10 or 15 times that of the patient with colitis.[1]

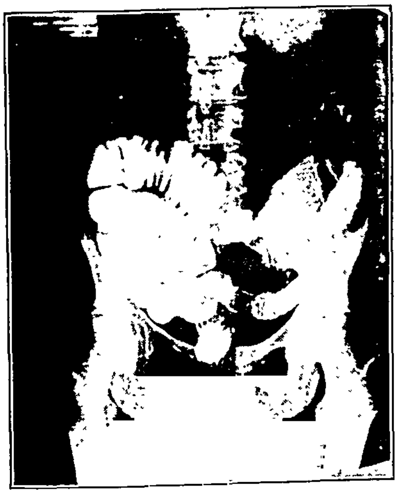

Fig. 3.—Ulcerative colitis limited to the part innervated by the sacropelvic nerves.

The recent reports that bilateral vagotomy produced definite improvement in the clinical picture of ulcerative colitis add weight to the assumption that the titer of pancreatic enzymes is a factor in this disease. This improvement can be due only to the slowing down of peristalsis in the small intestine and first part of the colon. Neither of these portions of the gastrointestinal tract is involved in the early picture of this disease.

The similarity of the proctoscopic picture of the early involved mucous membrane to the skin of an ileostomy patient led me to believe that increased concentration of enzyme was an important factor which produced digestion in both conditions. Experimental studies in dogs produced too many variables to allow any conclusion as to the concentration of these mixtures. More careful work in future studies should shed more light on this phase of the subject.

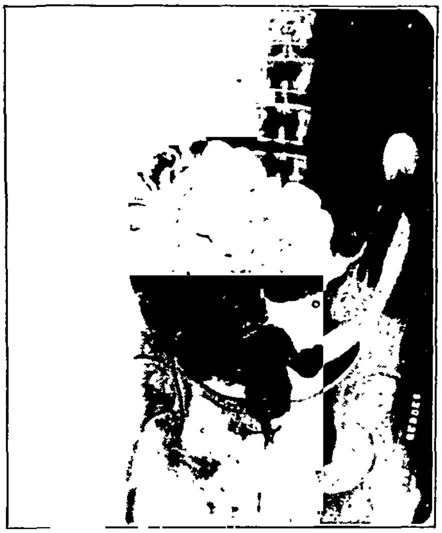

Fig. 4.—Roentgenogram taken two years and eight months after figure 3, showing that the disease had not progressed beyond that portion subserved by the sacropelvic nerves.

The mucous membrane in early and even in late ulcerative colitis is hyperemic and swollen, has a cooked appearance and bleeds easily with such slight trauma as brushing with a cotton swab. The pinpoint hemorrhages resulting from swabbing early in this disease are diagnostic, occurring in no other disease where macroscopic ulceration does not exist, except acute bacillary dysentery.

The mucosa of the intestinal tract is covered with mucus secreted by its glands. The complex carbohydrate mucin probably serves chemically and physically to protect the lining cells from enzymes and acids. Liquefaction or hydrolysis of mucin is produced by the mucolytic enzyme lysozyme, which is normally present in the intestinal tract and the concentration of which may change in gastrointestinal disorders. It is obvious that an increased concentration of lysozyme may mean lysis of mucus, and therefore an increased attack by enzymes on unprotected mucosa.

Recently, Meyer, Gellhorn, Prudden, Lehman and Steinberg[2] have shown a mean lysozyme titer for normal stools of 2.7 units. Normal stools after purging showed 1.6 units. The mean titer of stools from patients with chronic ulcerative colitis was 56 units. Even more striking was the high titer of lysozyme found in specimens of mucus obtained from the rectosigmoid region of patients with this disease, a mean of 158.1 units. On the other hand, the ileal stools of 3 patients after ileostomy showed a mean titer of 2.8 units. The highest total of lysozyme content noted in the feces of a control group was 528 units in twenty-four hours, whereas the lysozyme secretion of ulcerative colitis patients was as high as 44,400 units in a comparable period (table).

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[1] Portis, S. A.; Block, C. L., and Necheles, H.: Gastroenterology 3: 106-113 (Aug.) 1944.

[2] Meyer, K.; Gellhorn, A.; Prudden, J. F.; Lehman, W. L., and Steinberg, A.: Proc. Soc. Exper. Biol. & Med. 65: 221-222, 1947.

Meyer and co-workers [3] studied 5 patients with peptic ulcer before and after vagectomy. The mean fall in the titer was 44.4 per cent, with a range of 16.7 to 74.4 per cent. This, they concluded, indicates that lysozyme production is at least partly influenced by nervous control. Apparently, in ulcerative colitis the emotional stimuli transmitted to the rectum and sigmoid by the sacropelvic nerves produce more lysozyme than is normal for the mucous membrane of the rectum and sigmoid, and the mucous protection of the sigmoid and rectum is definitely lowered by this mucolytic enzyme. The lowered resistance of the mucous lining may allow tryptic digestion and invasion by bacteria apparently innocuous to a normally protected mucous lining. The increased peristalsis of the small intestine and colon would throw more tryptic enzyme down on an unprotected mucous membrane. Ulceration is the result of enzyme digestion.

The disease process, therefore, is comparable to peptic ulcer except that it is diffuse rather than isolated.

*Lysozyme Assays of Normal and Pathologic Stool Specimens*

| Source | Individual Lysozyme Titers (Units per Gram, Wet Weight) | | | Mean Lysozyme Titer |
|---|---|---|---|---|
| Normal stools ................ | 0.5 | 9.4 | 4.4 | 2.7 |
| | 0.2 | 0.8 | 0.9 | |
| Normal stools (after purging) | 0.4 | 3.9 | 1.0 | 1.6 |
| | 0.8 | 1.3 | 0.1 | |
| | 1.0 | 3.8 | | |
| Chronic ulcerative colitis stools | 28.3 | 48.7 | 22.3 | 56.0 |
| | 49.0 | 10.5 | 180.0 | |
| | 33.3 | 47.0 | 103.7 | |
| | 21.2 | 119.4 | 4.1 | |
| "Mucus" from chronic ulcerative colitis patients .............. | 43.5 | 80.0 | 15.7 | 158.1 |
| | 167.0 | 466.0 | 176.5 | |
| Ileal stools .................... | 0.1 | 2.0 | 3.6 | 2.8 |
| Idiopathic diarrheal stool..... | 5.0 | | | |

Because this discussion suggests that ulcerative colitis may be the result of a pathologic mechanism originating in the emotional centers of the brain, it might be well to inquire into observations on the emotional factors in this disease.

Alexander [4] described the process by which the child in early life loses his sovereignty over his excremental functions during training to cleanliness, when adults try to influence him to defecate at regular intervals—for the child a compliance with the adult's wishes. The child may receive in exchange praise, love and sometimes even more material good, such as a piece of candy. Thus the excrement becomes first associated with the concept of possession, and its close relation to money, one of the best established facts of psychoanalysis, can be explained easily on this basis. The child can evaluate his excremental acts as a kind of donation to the adults, and the concept is often reinforced by the mother's great interest in the matter. (The German expression for the bowel movement of the child, *Bescherung*, means gift.)

In the early period the child's attitude toward excrement is coprophilic. The excrement is a valuable possession, a source of pleasure and something which can be exchanged for other goods. This coprophilic attitude, however, soon is changed by educational procedure to its opposite, disgust and depreciation. This becomes, then, the basis of the sadistic aggression and soiling connotation with the excremental act. The excrement becomes a soiling weapon, and the act itself has assumed a depreciatory significance. This can be observed most clearly in the little street urchin who defiantly shows his hindparts and often accompanies this gesture with some kind of aggressive invitation. All these emotional connections, of course, more or less disappear in later life from the conscious personality, but they remain deeply rooted and often appear among the neurotic symptoms of mentally disturbed patients and even in the dreams of normal adults. Apparently, from the evidence of Alexander, the establishment of correct bowel reflexes leading to expulsion of stool must travel over the sacropelvic nerves. Therefore, one would expect that the primary area attacked in emotional disturbances associated with defecation would be the area subserved by those nerves: only later would the pathologic changes spread upward into the field of vagal innervation of the colon.

Other constellations of emotional factors also may produce this disturbed physiologic balance, but they have not been so clearly worked out or tabulated for statistical evaluation.

It is of clinical interest that this psychologic explanation of early infantile bowel habits can be demonstrated in adults. For instance, a young woman married for six months began suffering from early ulcerative colitis. Under medical management, later to be discussed, the bowel had become entirely quiescent—no blood, normal formed stools and a feeling of well-being. After three months of medical management she complained to me, one Monday, of a precipitous recurrence of her diarrhea on the preceding Sunday morning. Careful interrogation revealed that she had had no undue excitement on the previous Saturday evening. She had eaten at home on Saturday and Sunday, followed her diet and taken her medicine as directed. About one hour after breakfast, while she was working around the home, diarrhea appeared. I know from clinical experience that diarrhea cannot occur in a well managed subject who has no intercurrent infection, unless there has been overt emotional stimulation of the presumably stabilized emotional system. Therefore, I questioned her on the life situations of that Sunday morning when she was at home with her husband. She denied any unusual happening, but further prying revealed that her husband asked her, facetiously or otherwise, "What about the $400 I loaned you when we first got married to buy your trousseau? When am I going to get it back?" She did not have the $400. She felt distinctly disturbed, regressed into a childhood pattern and immediately had diarrhea. When I pointed out to her the association with the money and her inablility to give it back except with bowel movements, the condition immediately cleared up—with no change in diet or medical management. This patient subsequently went through an entire pregnancy without further recurrence of symptoms.

Another similar but more complicated life situation was that of a civic-minded attorney in a small town. He had had ulcerative colitis for two years. His stools were free from occult or gross blood for a year and one-half under management, and for two months he had not received any drugs and was leading a well

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3. Meyer, K.; Prudden, J. F.; Lehman, W. L., and Steinberg, A.: Proc. Soc. Exper. Biol. & Med. 65: 220-221, 1947.

4. Alexander, F., in Portis, S. A.: Diseases of the Digestive System, ed. 2, Philadelphia, Lea & Febiger, 1945, p. 838.

regulated life with no particular dietary restriction. He concocted the idea that the church should assume the responsibility for the afternoon play of the school boys, and a deficit of $600 accrued. He went to the lodge of his community and told them of the deficit, and was told that he had engineered the scheme and that the lodge did not have the money. Simultaneously with the inability to furnish funds his diarrhea recurred. When the interpretation heretofore outlined was given to him, his bowel movements became normal after a few weeks' management and have since remained so.

A more striking case is that of a 19 year old student who was being given combined medical and psychiatric management at the hospital. He was having twelve stools during the day and six to ten stools at night before and during the early hospital period. He had had ulcerative colitis since the age of 9. His bowel movements narrowed down to one a day and none at night while he was in the hospital. I quote from the notes of the psychiatrist:.

> After the sixth interview I was told by you that he was medically under control. I thought that I could try some interpretive material which might precipitate some reaction. During that interview the patient protested the fact that he was so dependent on his parents, he felt badly that he had to take so much from them, he felt badly that they had to supply all of his needs. I then told him that I thought the reverse was true, that in reality he wished to take from them, wanted to be dependent, wanted them to take care of him. He immediately asked to be excused, saying he had to go to the toilet, and subsequently showed a reaction that was diarrheal in character.

After he returned to his room, no more bowel movements occurred that day.

In the more superficial disorders, the emotional patterns can be handled by careful painstaking interrogation. The more deep seated, the more complex emotional patterns should be handled by a psychiatrist. I sound a solemn note of warning. Once this disease is diagnosed, medical management should be vigorously employed, and at no time should a psychiatrist be allowed to treat a patient with ulcerative colitis without rigid medical control. The disease is too treacherous to be handled by the psychiatrist alone. Perforation and hemorrhage can and do occur without rigid medical control. No psychiatrist can control the emotional problems twenty-four hours a day. Therefore, I repeat that combined management, if a psychiatrist is needed, is the only safe treatment.

## MEDICAL MANAGEMENT

The therapeutic approach to this problem should take into consideration the dietary aspects, the medicinal or pharmacologic agents and psychiatric treatment, if needed.

*A. Diet.*—The diet for ulcerative colitis is outlined:

Foods Allowed

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| Cereals | One serving daily. Well cooked oatmeal and pettijohns, cream of wheat and farina. Avoid cereals containing bran, e.g., "all-bran" "shredded wheat," "muffets" and "grape nuts." |
| Cereal Substitutes | Spaghetti, noodles, rice, vermicelli, macaroni; all to be plainly prepared without the addition of any fat or highly seasoned sauces. |
| Breads | Enriched white bread, well toasted. May use melba toast, white crackers, zweiback, or holland rusk if desired. |
| Potatoes | One serving daily. May be either boiled, baked or mashed. |
| Soups | Vegetable milk soups made with puréed vegetables and milk. Avoid the use of all meat stock soups. |
| Meats | Lean tender beef, lamb, liver, dark meat of chicken or turkey.<br>Liver two times per week. Broiled or boiled sweetbreads, kidney lamb chops may also be used. None to be fried. |
| Fish | Broiled, boiled or baked lean fresh water fish, e. g., perch, pike, bass, trout or whitefish. At least once or twice per week. May have fresh boiled shrimp if desired without garnish. |
| Cheese | Cottage, cream, mild American and Wisconsin brick cheese. No other kinds of cheese to be used. |
| Eggs | One or 2 daily, soft cooked, poached or soft scrambled over low flame. None fried. |
| Vegetables | All vegetables are to be thoroughly cooked and puréed. Use leafy green vegetables, e. g., spinach, and greens (puréed) liberally.<br>Avoid the use of all raw vegetables. |
| Fruits | May have canned or stewed fruit (all to be puréed EXCEPT peaches and pears). Avoid syrup of canned or stewed fruit. Use puréed prunes and strained orange juice frequently. NO raw fruits or fruits with tough skins, fibers, and seeds. |
| Desserts | Fruit as aforementioned, fruit gelatin, rice pudding (no raisins), tapioca, junket and custard. |
| Beverages | At least 3 glasses of milk daily, buttermilk or acidophilus milk occasionally. |
| Condiments | None except salt in moderate amounts. |

Foods to Avoid

Coffee, tea, alcoholic and carbonated beverages, cocoa and tobacco.
Raw fruits and vegetables, berries, syrups or canned fruits. Fried foods, oils, salad dressings, cream, nuts, peanut butter, pork and pork products. Gravies and sauces. Spices and condiments.
Tinned or luncheon meat and fish.
Candy, cake, pies, pastries, sugar, jelly, honey, syrup and jam.

Use "cellu" sugarless sweetener or saccharine instead of sugar.

The following outline is of a sample menu for ulcerative colitis:

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| Breakfast | 6 oz. strained orange juice<br>½ cup well cooked oatmeal<br>4 oz. milk<br>1 soft cooked egg<br>2 slices white toast<br>1 pat butter<br>6 oz. milk<br>No sugar |
| 10 a.m. | 6 oz. tomato juice<br>1 slice white toast<br>1 pat butter |
| Luncheon | 4 oz. cream of pea soup<br>Broiled whitefish, 3 oz.<br>Boiled potato<br>Puréed green beans<br>2 slices white toast<br>1 pat butter<br>Fresh strained applesauce (no sugar)<br>6 oz. milk<br>No sugar |
| 3 p.m. | Canned peaches, no syrup<br>2 unsalted white crackers |
| Dinner | 3 oz. tomato juice<br>3 oz. broiled calves' liver<br>Baked potato (no skin)<br>Puréed spinach<br>Puréed lima beans<br>2 slices white toast<br>1 pat butter<br>Baked cup custard<br>6 oz. milk<br>No sugar |
| Bedtime | 4 oz. rice pudding<br>6 oz. milk |

| | |
|---|---|
| Protein (Gm.) | 123 |
| Fat (Gm.) | 92 |
| Carbohydrate (Gm.) | 305 |
| Calories | 2,540 |

From the outset the patient is fed easily digestible foods which leave little or no residue. Because of rapid passage of the food through the gastrointestinal tract, absorption is impaired; therefore the diet is high in protein, calories, vitamins, iron and carbohydrates. The high iron content is advisable also to replace iron lost by hemorrhage from the ulcerative surfaces. Fats usually are not well tolerated and are used moderately. Omission of free sugar in any form was based on twofold evidence: First, slow injection of dextrose in normal dogs greatly increases the tolerance of these animals to subsequent more rapid injection, and second, the deaminization of protein and the formation of carbohydrate go on at a much slower rate in the liver of patients with colitis and therefore will give a more prolonged secretion of glucose over a long period, and postdigestive hypoglycemia will be delayed if necessary to the next intake of food. However, more frequent feedings than the normal three meals a day were used as an additional factor of safety, to prevent hypoglycemia, and a feeding was given at bedtime to prevent hypoglycemic manifestations between the last regular meal at night and breakfast. The patient receives his three main meals, a midmorning feeding, one or two midafternoon feedings and a feeding before he retires at night.

My studies led me to believe that physiologic disturbances of the gastrointestinal tract respond best when circulating sugar in the blood is high at all times. This has been previously emphasized in the treatment of peptic ulcer and patients suffering from fatigue.[5] One of the most important functions of food is to keep the brain adequately supplied with glucose. This continuous nourishment has a salutary effect on an emotionally disturbed brain. The tendency to relative hypoglycemia is revealed by an intravenous glucose tolerance test. The blood sugar level at the end of three hours is lower as a rule than the initial fasting value.

Smoking is prohibited, because it prolongs hypoglycemia after the initial rise of the level of blood sugar, defeating the purposes of this diet.

*B. Medicine.*—1. Atropine sulfate is the drug of choice. It paralyzes the vagus and sacropelvic parasympathetic nerves and usually blocks out impulses from the emotional centers of the brain. Only when excessive stimulation comes over these nerves does an impulse get through to the intestines. The drug may be given to adults in doses varying from 1/200 to 1/50 grain (0.33 to 1.3 mg.) three times at meals and a fourth time at bedtime. The bedtime dose is exceedingly important for the blocking out of emotional disturbances carried over these nerves while the patient is asleep. Furthermore, ten hours may elapse before the next intake of food.

2. Phenobarbital is given in doses of from ¼ to ¾ grain (18.2 mg. to 49 mg.) three times a day at meals and a fourth time with the bedtime meal. The barbiturates tend to produce a quiescent emotional household.

3. Sodium alkyl or lauryl sulfate, in doses of 100 to 200 mg., is given three times a day. (If excess pancreatic enzyme and bacterial trypsin are present, they can be bound with one of these wetting agents.) In a recent verbal communication Karl Meyer stated that these wetting agents bind lysozyme and make it inactive. Observations on a large number of patients lead me to conclude that this is an important therapeutic agent. It is best given in enteric-coated pills to escape combination with gastric enzymes and prevent nausea. I have used it in ordinary capsule form, but the present preparations have many impurities and may not be well tolerated. More chemically pure preparations of these wetting agents are in the process of manufacture.

4. Sulfonamide drugs inhibit to some extent the bacteria which take their toll on the unprotected mucous lining of the affected portion of the colon. My personal choice among them is phthalylsulfathiazole, given in doses of 15 to 30 grains (1 to 2 Gm.) three times a day. This produces a low concentration of the sulfonamide drug in the blood stream and a high concentration in the bowel content. Antibiotics have little, if any, value in the nonfulminating form of this disease. Phthalylsulfathiazole should be used only at the outset and for short periods, because normal inhabitants of the gastrointestinal flora manufacture parts of the vitamin B complex, particularly pantothenic and folic acid, the latter necessary for hemopoiesis. Elvehjem[6] has shown that if the gut of young puppies is sterilized with sulfonamide drugs, growth ceases, because of vitamin deficiency.

5. Crude liver extract, 2 cc. three times a week intramuscularly, furnishes a high concentration of the whole vitamin B complex, of distinct benefit to the patient. There is some clinical evidence that it is beneficial to liver metabolism as a whole and, therefore, produces a better physiologic balance of the liver. Thiamine chloride should be restricted to small doses, because it may be laxative.

6. Contraindicated drugs include bismuth, kaolin and kaopectate, which are dangerous in any form because caking of the fecal content may cause pressure necrosis and perforation. Opiates are rarely needed, but 10 to 15 drops of tincture of opium one to three times a day is the preferable form. I rarely use any opiate.

Acutely ill patients should be hospitalized, but others may be treated while ambulatory. Hospital or ambulatory management is the same, as a rule. However, in the presence of severe anemia with a low level of plasma proteins, transfusions of whole blood, plasma and electrolytes with dextrose may be indicated early. As the disease gets under control, these emergency measures are not needed.

The type of case selected for medical management is usually one in which damage to the bowel wall has not been too severe. However, even when damage has been considerable, vigorous medical and psychiatric control should be tried. I do not see tubular constricted and perforated colons any more, although other clinicians may still see them. The fact that chronic tubulated, extensively involved colons do come to one's attention is a sad reflection on the medical management previously given to these patients. Therefore, I repeat: One cannot point with pride to the resultant incidence of morbidity and mortality.

If the colon is beyond medical repair, surgical intervention may be indicated. The type of operation should be decided by the combined judgment of surgeon and internist. The psychiatrist becomes an interested observer during the surgical phase. Modified medical management should follow the operation, with choice dependent on the type of surgical treatment. I might add parenthetically that I do not think ileostomy is of any particular value in the acute fulminating phase of this disease. It accomplishes nothing which cannot be accomplished with the present pharmacologic and parenteral therapeutic approach.

## RESULTS OF MANAGEMENT

Five years of continuous experience have led to the conclusion that the medical management outlined for early and uncomplicated ulcerative colitis is the safest and most satisfactory treatment.

The regimen affords the opportunity of rigidly controlling the patient at all times, observing the progress of the disease through the proctoscope and noting complete healing when the rectum and sigmoid mucosa no longer bleed when swabbed with cotton. This disappearance of bleeding on trauma is one of the most accurate criteria that the mucous membrane is no longer the seat of this disease. Roentgenologically there is no irritability, the feathery edge of the colon disappears; haustral markings may reappear, and flecklike ulceration on pneumocolon is no longer evident.

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[5] Portis, S. A.: Medical Treatment of Psychosomatic Disturbances, J. A. M. A. **126**: 413-417 (Oct. 14) 1944.

[6] Elvehjem, C. A.: J. Am. Dietet. A. **22**: 959-963 (Nov.) 1946.

Thus the lower part of the colon is restored to a near normal pattern.

In my experience, only under this management can the psychiatrist be allowed to go at the emotional household as hard as he pleases without doing the patient harm. I have seen acute fulminating complications arise when the psychiatrist alone has treated the disease. Finally, I am led to believe that of all the diseases of the gastrointestinal tract for which combined medical and psychiatric control is desirable, nonspecific ulcerative colitis lends itself to the most lasting and satisfactory result.

## CONCLUSIONS

1. Emotional stimuli from the hypothalamic region are transmitted through the spinal cord and are carried by the sacropelvic nerves to the rectum, sigmoid and descending colon up to and including the ascending limb of the splenic flexure.

2. Lysozyme (a mucolytic enzyme) is partly influenced by nervous control. The increased stimulation by the sacropelvic nerves presumably produces a higher titer of this enzyme. The loss of mucous protection allows the digestive activity of the trypic enzyme from the pancreatic secretion and bacteria to take their toll on the mucous membrane.

3. Ulceration results from this pathologic-physiologic change.

4. Treatment should (*a*) be directed at the eradication of the emotional stimuli, (*b*) paralyze the sacropelvic parasympathetic nerves with atropine sulfate and (*c*) abolish cortical inhibitory influences on the hypothalmic region by the use of barbiturates; (*d*) enzymes should be bound by wetting agents as sodium alkyl sulfate to prevent their digestive activity; (*e*) sulfonamide drugs should be given cautiously and only for limited periods.

5. Psychotherapy should be accompanied with rigid medical control at all times.

## ABSTRACT OF DISCUSSION

Dr. Franz Alexander, Chicago: Emotional factors in the precipitation and clinical course of ulcerative colitis have been repeatedly stressed by a number of experienced clinicians. Very little specific was known, however, about the nature of the emotional factors involved. The pathophysiologic mechanism by which these emotional factors influence the mucous membrane of the large bowel were equally unknown. Dr. Portis has succeeded in indicating specific psychologic and somatic factors. His observation concerning the initial localization of ulceration in the lower portion of the colon, which is under the nervous control of the sacropelvic portion of the parasympathetic system, appears highly significant. It confirms the observation that the psychologic stimuli in play pertain to the excremental act. The clinical examples of Dr. Portis are convincing and correspond to the preliminary observations made at the Chicago Institute for Psychoanalysis in the course of a psychosomatic study of ulcerative colitis. In these preliminary studies, two emotional factors stand out conspicuously, both in precipitating the disease and also in provoking relapses. One is the frustrated tendency to carry out an obligation—either moral or material—and the other is the frustrated ambition for accomplishment requiring concentrated expenditure of energy. Dr. Portis' example demonstrates the first type of emotional factor. He correctly pointed out that the urge to give or to fulfil an obligation are deeply linked with the act of evacuation. For the psychoanalytically trained psychiatrist, also, the emotional connection between pride in accomplishment and the excremental act is well known. The specific psychiatric question is to explain the fixation of the patient with ulcerative colitis to the anal phase of emotional development. Once the origin of this emotional fixation is established one can easily understand that whenever in later life the urge to give, to carry out an obligation or the ambition for accomplishment on some adult social level is blocked because of neurotic inhibitions, a regression to the anal form of giving or accomplishment may take place. It should be emphasized, however, that anal regression of this type is extremely common in all kinds of psychoneurotic persons. Some specific local somatic factor must be responsible for the fact that in some patients anal regression produces ulcerations in the bowels. Some inherent weakness must be assumed, and Dr. Portis' study indicates that this susceptibility to emotional stimuli of anal regressive nature may lie in the peculiarity of the intestinal enzyme chemistry which is characteristic for these patients.

Dr. Robert J. Coffey, Washington, D. C.: Dr. Portis' paper offers a completely new approach to many perplexing problems of this disease. His views substantiate the rationale of a recently proposed surgical attack on chronic ulcerative colitis, namely, interruption of the vagus nerves. This procedure is, I understand, now being limited to early phases of this condition and, as in the case of peptic ulcer, is to be viewed at the present time only as a "justifiable experiment." I wonder whether interruption of the sacropelvic outflow of the parasympathetic nervous system should not be used to supplement vagotomy in this work. The merit of any such procedure applied to the early phases of this condition is subject to doubt and criticism, as many other proposed forms of therapy have been at times successful and spontaneous regression and cure not infrequently occur. Dr. Portis stated that this is essentially a medical disease, a view which I, as a surgeon, whole-heartedly share. It is only for the advanced manifestations that surgical treatment is indicated. Among the usual indications for surgical treatment are: (1) Intractable, insanguinating hemorrhage, for which ileostomy may be used in desperation. This is, in my opinion, a rare occurrence. (2) Advanced and diffuse involvement of the colon in which the organ becomes a badly scarred, narrow tube. My feeling is that even in these advanced cases, total colectomy, with a permanent ileostomy, is rarely justified. (3) Localized ulcerative colitis, in which the rectum and lower sigmoid are relatively uninvolved—this situation is rarely encountered, but when present, permits of segmental resection of the involved portion, the results of which are uniformly good. (4) Polyposis. Dr. Bargen, of the Mayo Clinic, and I demonstrated that there is a 10 per cent incidence of polyps in chronic ulcerative colitis. These polyps have been previously regarded as pseudopolyps or inflammatory tags of mucosa following an extensive ulcerative process. However, our studies revealed that true adenomatous changes develop in about 20 per cent of the cases in which polyps develop. These adenomatous changes are usually recognized grossly by the exuberant vascular appearance of the polyps in distinction to the pale fibrous appearance of the commoner pseudopolyps. As pointed out by Bargen, the incidence of carcinoma in chronic ulcerative colitis is 2.5 per cent, and this percentage of malignant disease occurs almost exclusively in the group in which true adenomatous polyps develop.

Dr. Peter D. Comanduras, Arlington, Va.: This disease is a strange and complex malady. Certain factors must be known before any final evaluation of this disease can be justified. First, the causation is not known. Secondly, it is a chronic disease with remissions and relapses, most often spontaneous. It may manifest itself in various forms at different times in the same person or in different persons. There is another type of the disease which is frightening—the acute type with exsanguinating hemorrhages which in a few hours to a few days may result in death. A third type is progressive, unrelenting in its character and intensity, becomes worse despite all treatment and may result in death within a few weeks to a few months. The word "cure" must not be used at the present time in this disease; probably "arrested stage" is a better term. The observation of lysozyme in increasing amounts in peptic ulcer and ulcerative colitis is most interesting. Blood transfusions should be used repeatedly and frequently. Two thirds of the patients with ulcerative colitis respond to medical treatment. One third will not improve. Of these, two thirds will probably die and one third get worse. However, operation does not have much to offer. It has been stated that of those who have been operated on, two thirds will be dead after a few years. Recently it has been stated that out of 141 patients, over a period of five years, only 5 were feeling better at the end of five years. One needs all the art and science one may have in order to treat these patients. In using that art and science, one thought should be uppermost in mind—do not harm the patient. One needs patience and, above all, an infinite knowledge of human nature.

Dr. Sidney A. Portis, Chicago: Dr. Coffey raises the question about vagotomy in ulcerative colitis and the possibility of also interrupting the sacropelvic outflow of the parasympathetic nervous system. I see no indication for vagotomy in early ulcerative colitis unless the patient does not respond to treatment with such paralyzing drugs as atropine or a similar pharmacologic approach. Secondly, if the patient is psychologically unanalyzable, the vagal influence could be abolished by vagotomy. All vagotomy does in these patients is to prevent emotional stimuli from reaching the gastrointestinal tract up to the ascending limb of the splenic flexure or Cannon's point. I do not believe that Dr. Coffey understood the validity of my premise in trying to maintain a high blood sugar content at all times and prevent overt stimulation of the islet cells by the use of paralyzing drugs, such as atropine. Furthermore, insulin and pancreatic enzymes are not simultaneously secreted by stimulation of the vagus nerves. In other words, there is no evidence of any hypersecretion of pancreatic enzymes in disturbed patients that I know of. I did not use the word "cure," and I am particularly emphasizing that this presentation is "concepts" and not necessarily "proofs." Dr. Comanduras discusses the problem about getting two thirds of a group of patients well and one third of the group do not respond at all to treatment. It is this 33 per cent morbidity which I think is a challenge to the profession. Mortality and morbidity figures of 30 to 40 per cent are no credit to any of us. When we get these figures below 5 per cent then we are doing a real job. I think that we are beginning to understand what is going on in the colon—that we might be able to prevent this pathologic-physiologic condition from progressing to the extent that there will be a severely damaged colon. There is, at least, a ray of hope that this devasting disease with its chronic invalidism and even subsequent surgical treatment may be completely abated at the outset and the colon returned to a near normal status.

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**The Soul of Good Doctoring.**—Begin to cultivate this gift of sympathy early. Sit down on the lockers of the patients who are allotted to you and talk to them. The experience will surprise you—and it will probably surprise the patient! A good deal has been said about the doctor-patient relationship; I've said a good deal about it myself. But since it is the very soul of good doctoring, its importance can never be exaggerated. One of my chief reasons for distrusting the "new look" recently given to British Medicine is its tendency to disregard the "close-up" which is so important between doctor and patient. Availability of Medicine to all the people is a good idea. I am "all for it," as the expression goes. But *what* Medicine? Seeing 85 patients in a doctor's "surgery hour"—the operative word is clearly "seeing"—isn't Medicine. This is one of the results of the switchover that it is to be hoped will soon be adjusted. There are other knots to unravel. But the standard of doctoring is the thing that matters and no one can maintain that except the doctor himself.—Lord Horder, G. C. V. O., M.D. (Lond.), F. R. C. P., The Vocation of Medicine, *The Lancet*, Nov. 6, 1948.

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# TOLUIDINE BLUE IN BLEEDING ASSOCIATED WITH THROMBOPENIA

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The use of toluidine blue or protamine as an aid in controlling the general tendency to bleed in thrombocytopenia has been suggested by Allen and his co-workers.[1] An anticoagulant, indistinguishable from heparin, was found in the blood of dogs that had hemorrhagic tendencies after prolonged exposure to roentgen rays. This bleeding was prevented and temporarily stopped by the intravenous use of protamine sulfate or toluidine blue. It was felt that this action was due to the ability of these substances to render heparin inactive. By titration of the blood in patients with thrombopenic purpura they showed that an increased heparin-like activity existed and that this could be neutralized in vitro by use of the dye or protamine. Later these substances were used to arrest the bleeding in patients suffering from thrombopenic purpura. It was found that no effect was produced on the platelet count or the bleeding time and that the primary effect was on the capillary permeability, thereby controlling the petechiae.

It is to show the results that we obtained with toluidine blue that the following cases are reported.

## REPORT OF CASES

Case 1.—An 18 year old single white girl entered the Shreveport Charity Hospital on June 21, 1947, complaining of bleeding from the gums and under the skin. About June 14 the patient noticed small hemorrhages under her skin. These were petechial in nature. She also noticed that her gums began to bleed. These had continued to ooze since then. Ecchymoses varied from 0.1 mm. to several inches in size. There had been no fever. There was no history of her having taken any medicine in over three years. There was no family history of bleeding tendencies. The patient had no previous attacks of this phenomenon. However, she did bruise easier than the average person. The patient had the usual childhood diseases. Her menses had been regular, and there had been no unusual menstrual flow.

Physical examination revealed a well developed well nourished white girl. There were generalized petechiae and ecchymotic areas from 0.2 mm. to 10 cm. in diameter on the arms, legs, trunk, face, tongue, tonsils and mucous membrane of the mouth. It did not involve the scleras, conjunctivas, retinas or vaginal mucosa. The eyes reacted to light and in accommodation. There was bleeding from the gums. No masses or tender areas were present in the neck. The lungs were resonant throughout. There were no rales on auscultation. There was no enlargement of the heart. The blood pressure was 120 systolic and 70 diastolic. There was a soft systolic murmur over the apex, which did not radiate. The rate was 70 beats per minute, with regular rhythm. The abdomen was normal. The spleen and liver were not palpable.

The reaction of the blood to the Mazzini test was negative. The urine was normal, chemically and microscopically. The results of the fragility test were normal. A sternal marrow aspiration on the day of admission revealed megakaryocytic

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Dr. Holoubek is a Fellow of the American College of Physicians.

From the Shreveport Charity Hospital; Visiting Physician (Dr. Holoubek), Visiting Surgeon (Dr. Hendrick) and Medical Resident (Dr. Hollis).

[1] Allen, J. G., and Jacobson, L. [illegible] Cause of the Hemorrhagic Syndrome Associate[illegible] to Ionizing Radiation, Science **105**:388, [illegible] G.: Jacobson, L. O., and Spurr, C. L.: Some Observations on Bleeding Tendency in Thrombocytopenic Purpura, Ann. Int. Med. **27**: 382, 1947.

hyperplasia. The reaction to the Rumple-Leed test was strongly positive. Roentgen views of both wrists were essentially normal, except for early fusion of the distal, radial and ulnar epiphyses. A diagnosis of idiopathic thrombopenic purpura was made.

On June 23 the patient received 160 mg. of toluidine blue in distilled water intravenously. The following day there was a slight decrease in menstrual flow, but the bleeding from the gums continued. On June 24, 80 mg. of the drug was given, with no apparent effect. There was a slight decrease in bleeding time, but it was still decidedly prolonged. It became obvious that the drug would not stop the bleeding. The patient was given a transfusion and referred for surgical treatment. She had a splenectomy on June 26, receiving 1,500 cc. of blood during the procedure. She bled profusely during the entire time. Postoperatively she went into shock and received 1,500 cc. of blood and 1,000 cc. of plasma during the afternoon. Plasma and transfusions were continued during the next day, and she received a total of 5,000 cc. of blood and 2,250 cc. of plasma. She had a stormy postoperative course, complicated by jaundice and a low grade fever for about one month.

Postoperatively the platelets showed a rise to 540,000 and finally returned to normal limits. The bleeding time also became normal. She was discharged August 6 and has had no symptoms since then.

*Pathologic Report.*—The spleen measured 14.5 by 8.5 by 4 cm. and weighed 210 Gm. The surface was smooth and reddish blue. The cut surfaces were brick red. The malpighian bodies were not prominent, and the pulp showed little tendency to scrape away. On microscopic section the normal architecture was preserved. There was reticuloendothelial hyperplasia of the pulp and slight eosinophilia.

Case 2.—The patient, a 52 year old white saleswoman, entered the hospital complaining of weakness and shortness of breath. She stated that she had been well until about six months prior to her hospitalization. At that time she had a low grade fever and was found to have abscessed teeth and pus in the urine. She was given sulfathiazole, and the teeth were extracted. After administration of the sulfonamide drugs, dizziness and headaches developed, but these ceased when she stopped the medication. She was also found to have anemia and was given iron and liver tablets. The patient gradually improved and during the summer of 1947 was well and able to do her work.

About Sept. 1, 1947, the patient experienced dizziness and shortness of breath. After climbing several flights of stairs she would get very weak and dyspneic. However, she had no difficulty walking and working on level ground. This continued for several weeks before she was visited by her physician.

There was no history of exposure to chemicals and no family history of anemia. The patient had had a tonsillectomy and an adenoidectomy in childhood, the usual childhood diseases and an appendectomy in 1930. She had no disturbance in her vision or hearing. There was no sore tongue or bleeding from the oral cavity and no cough or hemoptysis. There was slight edema of the ankles at night. Palpitation was associated with the dyspnea. The appetite had been good, and she ate well balanced meals. There was no jaundice, constipation, hematemesis or melena. There had been no dysuria or other symptoms since the cystitis six months previously.

Physical examination revealed a well developed woman with lemon yellow skin. The eyes reacted to light and in accommodation. The fundoscopic examination revealed no hemorrhages. The arteriovenous ratio was normal. There were no palpable masses or tender areas in the neck. The chest was asthenic, with equal bilateral expansion. There were no rales on auscultation. The point of maximal impulse was in the fifth intercostal segment 16 cm. to the left of the midsternal line. There was a harsh systolic murmur loudest in Erb's area and transmitted into the pulmonary area and to the aorta area. There was no change in the sitting position. The pulse rate was 100, and the rhythm was regular. The blood pressure was: right arm, 110 systolic and 60 diastolic; left arm, 100 systolic and 60 diastolic; left leg, 170 systolic and 100 diastolic, and right leg, 160 systolic and 100 diastolic. The liver was palpable 2 cm. below the right costal margin in the midclavicular line. It was smooth and not tender. The spleen and kidneys were not palpable. The pelvic examination revealed no abnormalities.

The hemogram revealed 910,000 red blood cells, hemoglobin 4.5 Gm. and a white blood cell count of 2,250. The urine was normal, chemically and microscopically. Gastric analysis revealed 14 per cent free hydrochloric acid and 28 per cent total acidity after histamine. Blood proteins were 7.6 mg. with albumin 3.6 mg. and globulin 4 mg. per hundred cubic centimeters. The nonprotein nitrogen was 27 mg. per hundred cubic centimeters and icterus index 20.2 units. Stool examinations revealed no parasites or ova. Agglutinations were negative for paratyphoid organisms A and B, Bacterium abortus and typhoid H organisms. Proteus OX-19 and typhoid O organisms were present in agglutinations of 1:20 through 1:1,640 on two occasions. On later rechecks the results were negative. A blood culture was negative. The result of the tourniquet test was negative.

Roentgenographic studies of the chest revealed passive congestion of both lungs. The cardiac shadow was enlarged, with predominant left ventricular hypertrophy. There was no evidence of abnormalities of the great blood vessels or of disease of the thoracic cage. Views of the pelvis showed no pathologic bone or joint conditions. Studies of the gastrointestinal tract by means of the barium sulfate meal revealed no evidence of filling defect or deformity of the esophagus or stomach. There was a small diverticulum and a slightly larger one of the third portion of the duodenum. There was no gastric retention at six hours. At twenty-four hours the head of the barium sulfate meal was in the rectum. A barium sulfate enema showed no evidence of filling defect or deformity of the colon at this examination.

Intravenous pyelograms showed the left kidney to be larger than the right. There was a calcified body seen opposite the first lumbar vertebra. It was in the region of an upper minor calyx. The dye filled the right kidney normally. There was a possible defect between the upper minor calyx and the middle major calyx on the left. Both ureters filled normally. There was no evidence of defect of the bladder.

A retrograde pyelogram of the left kidney showed no evidence of filling defect or deformity of the renal calices, pelvis or ureter.

An electrocardiogram revealed an elevated P wave in leads 1, 2 and 3. The R wave in lead 1 and the S wave in lead 2 were large and the S waves small in leads 2 and 3. The QRS axis was plus 90 degrees. The T wave was elevated in leads 1 and 2 and low in lead 3 with an axis of plus 45 degrees. The ventricular gradient was plus 70 degrees. The impression was: slight right axis deviation of the QRS complex, but there was no evidence of ischemia.

A sternal marrow biopsy revealed hypercellular marrow. The fat spaces were not completely obliterated, but in proportion to the cellular element they did not occupy more than one fourth or one fifth of the volume of the marrow. The predominant cells were in the erythrogenic line, and most of these appeared to be erythroblasts. On one side of this stage in the development, the more immature cells appeared reticuloendothelial in character (some of which appeared characteristic of megaloblasts), while on the other extreme further progress in maturation eventuating in normoblasts was noted. The cells in the granulocytic series were rather sharply reduced in number. Megakaryocytes were present but not numerous.

The patient showed signs of acute left ventricular failure and was temporarily digitalized. Transfusions were continued, and the blood cell count showed improvement. An abscess developed on the buttocks, which caused a septic temperature for about three weeks. During this time there was not an increase in the white blood cell count. Penicillin was given for about three weeks.

On Sept. 24, 1947, the patient suddenly started to bleed from needle wounds, the sternal marrow biopsy wound, gastrointestinal tract, the gluteal abscess and the mucous membranes of the mouth.

Transfusions were continued, but the bleeding became severer. On September 26 the bleeding was so severe that it was feared the patient would shortly bleed to death. The bleeding time was several hours. Toluidine blue, 132 mg., was given intravenously. The bleeding ceased dramatically, and bleeding time was down to eight minutes. The following morning the bleeding time was seventeen minutes. At this time 68 mg. of toluidine blue was given intravenously. Thirty minutes later the bleeding time was four minutes. Transfusions were continued, but all of the bleeding had ceased. After about ten days the wounds started to granulate and heal.

The fragility test revealed: control, beginning hemolysis at 0.44 and complete at 0.30; the patient, beginning hemolysis at 0.46 and complete at 0.34. The reticulocyte count was 1 per cent on September 24 and 5 per cent on October 10.

The improvement continued. She was given reticulogen, 1 cc. daily beginning September 27. The reticulocytes were 5 per cent. An epinephrine test (Doan) was done, and there was no change whatsoever in any of the cellular elements. She was discharged from the hospital and has maintained a completely normal blood cell count since then.

Case 3.—A 24 year old white woman entered the hospital complaining of progressive weakness and fatigue of three months' duration. She had a low grade afternoon fever of one month's duration. Palpitation and dyspnea occurred on exercise. Small petechial hemorrhages had developed on the legs a few weeks prior to hospitalization. She had always bruised easily. The menses always had been scanty, but for the past two months they were profuse.

The past history was noncontributory, and the system review revealed no abnormalities.

Physical examination revealed a slender asthenic pale woman. There were numerous petechiae on the lower extremities, with a definite gravitational distribution. The pupils reacted to light and in accommodation. There were numerous fresh petechial hemorrhages in the retina. The ears were normal. The mucous membranes of the mouth contained many small petechiae. The dentition was normal. The chest was asthenic, and there were no rales in the lungs. The heart was midline, and the blood pressure was 104 systolic and 70 diastolic. There were no murmurs. The pulse rate was 110. The liver was smooth and palpable 2 cm. below the right costal margin. The spleen was smooth, hard and palpable 8 cm. below the left costal margin. A few small distinct nontender lymph nodes were palpable in the right axilla and left groin.

A diagnosis of subleukemic lymphatic leukemia was made, and general supportive treatment was started.

She was given a total of nine transfusions, first at weekly intervals and more frequently later. She continued a progressive downhill course.

On October 30 the petechiae became more pronounced on the legs. A decided increase in the heparin-like activity of the blood was found in the titrations, with the method of Allen. Toluidine blue was given in an attempt to stop the petechiae (2.5 mg. per kilogram of body weight was given the first day and 1 mg. per kilogram the second day). There was no oozing at this time. The platelet count was 23,000. No transfusions were given for two weeks. It was noticed that no new petechiae developed for one week. After this time new ones formed.

On Nov. 12, 1947, oozing from the mouth started and the patient vomited blood. The hemogram revealed 8.5 Gm. hemoglobin, 2,760,000 erythrocytes, 6,700 leukocytes, 25 neutrophils, 10 lymphocytes and 65 lymphoblasts. The platelet count was between 23,000 and 35,000.

The patient was given 3 mg. per kilogram of body weight of toluidine blue, and within the hour the oozing and vomiting ceased. There was no appreciable effect on the bleeding time, which was decidedly prolonged. Three days later bleeding again developed, and the medication was repeated with dramatic cessation of the bleeding. A spiking fever developed during this time.

In spite of repeated transfusions she continued a rapid downhill course and died sixteen days after her final admission. After the four infusions of toluidine blue, the patient had no more petechiae. Prior to the use of the dye two hundred petechiae were counted in an area 3 cm. in diameter. These completely cleared for the last week of life.

Postmortem examination revealed numerous petechial hemorrhages on the surfaces of the heart, lungs and small intestines as well as in the medullary portion of the kidneys. The spleen measured 10 by 5 by 20 cm. The mesenteric nodes were enlarged.

Microscopic sections revealed congestion in both lungs. Observations of the bone marrow confirmed the diagnosis of lymphatic leukemia.

## COMMENT

There was little if any response to the use of the dye in case 1. Facilities for the titration of the patient's blood for the presence of heparin-like substances were not available, and the test was not done. Undoubtedly, if this had been done, it probably would have revealed no response.

In the second case, however, the response to the intravenous administration of the dye was dramatic. The patient was practically morbid from oozing from the mucous membranes of her mouth, bowel and petechial hemorrhages in the skin. There had been no response whatsoever with the transfusions. Even though it has been reported that the dye does not affect the bleeding time, it is interesting to note that the bleeding time on September 27 was seventeen minutes just prior to the second injection of the dye. One-half hour after the completion of the procedure it was four minutes. No transfusions were given during this time. Titrations were not done in this case.

In the third case, the blood was titrated for heparin-like activity and it was obvious that this was decidedly increased. Therefore, the use of toluidine blue was indicated to stop the petechiae and oral bleeding. It worked dramatically, and, since the effect lasted about three to four days, it was repeated. It kept this patient comfortable during the last few days of her life. However, even though petechiae of the skin and oozing of the mouth were not observed during the last week of her life, numerous petechiae were found on the viscera at death. The last injection of the dye was eleven days before death.

One interesting observation in the last 2 cases was the rather dramatic feeling of well-being experienced by these patients after the medication was given and the hemorrhages ceased. This was noticed not only by the patient, but by the nurses and the family.

The antiheparin drugs are a valuable adjunct to the treatment of petechial bleeding associated with thrombopenia in properly selected cases. First, it may be used in preparation for splenectomy in thrombopenic purpura; second, in certain instances of acute bone marrow suppression it may be lifesaving, and a third important use is in decreasing the amount of petechiae and oral bleeding in patients with leukemia, thereby making the last few weeks of their life more comfortable. Fourthly, toluidine blue may be used to stop the bleeding tendency in a patient who has been given too much heparin in the treatment of phenomena.

## SUMMARY AND CONCLUSION

Three cases are reported in which toluidine blue was used in an attempt to stop the petechial bleeding and oozing in cases of bleeding secondary to thrombopenia.

Proper selection of cases is of extreme importance in the use of this substance.

## ADDENDUM

Since this article was written we have had the opportunity to do toluidine blue filtrations on thirty purpuric states associated with thrombopenia. The result of the test has always been positive in leukemias in this series.

# THE JARISCH-HERXHEIMER PHENOMENON IN LATE SYPHILIS

## Probable Fatal Reactions to Penicillin

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Since the introduction of arsphenamine the Jarisch-Herxheimer reaction has been a much debated, frequently maligned and little understood phenomenon. In early syphilis, the reaction is characterized by fever with or without an intensification of accompanying visible lesions, the complete reaction occurring within the first twenty-four hours following the administration of an actively antitreponemal agent. In late syphilis fever also occurs, but the clinical manifestations are more varied both in symptoms and in severity depending, probably in large part, on the anatomic site of the lesion(s) and perhaps, on the numbers of Treponema pallidum present. With the advent of penicillin, attention has been refocused on the Jarisch-Herxheimer phenomenon, and alarming, although not fatal, reactions presumably of this type have been reported in neurosyphilis,[1] in cardiovascular syphilis[2] and in syphilitic primary optic atrophy.[3]

The purpose of the present report is to record fatalities in 2 patients with late syphilis occurring within the first few hours after the institution of penicillin therapy. The evidence in one patient, with a proved gumma of the brain, who died suddenly and unexpectedly fourteen hours after the initial injection of penicillin, offers convincing proof to us of the occurrence of a fatal Jarisch-Herxheimer reaction and as such represents the first thus far reported following administration of this agent. In the second patient, with an aortic aneurysm which ruptured forty-nine hours after the institution of penicillin therapy, the circumstances are perhaps less conclusive.

### REPORT OF CASES

Case 1.—F. S., a 21 year old white housewife, was admitted to the gynecologic service of the St. Louis City Hospital on Jan. 19, 1948, with presumed vomiting of pregnancy. The relevant history, as reconstructed later, dated to one year prior to the present admission, when she consulted the outpatient clinic of another hospital for prenatal care. A diagnosis of early latent syphilis was made, and between Jan. 14 and July 27, 1947, she received twenty injections of oxophenarsine hydrochloride and nineteen of a bismuth compound. On the latter date she was delivered of a living nonsyphilitic[4] infant. The serologic reaction for syphilis, positive before treatment, was negative at the time of delivery.[5] The patient lapsed from observation and received no further treatment for syphilis.

The complaints necessitating the present hospitalization dated to one month prior to entry and included anorexia, nausea, vomiting, frontal headache, unsteadiness in gait, insomnia, nervousness and moderate generalized weakness. For two weeks she had noted photophobia and some blurring of vision. The last menstrual period had occurred ten weeks before admission.

On physical examination the (rectal) temperature was 37.2 C. (99 F.) pulse rate 88 per minute, respiration rate 24 per minute and blood pressure 120 mm. of mercury systolic and 80 diastolic. The patient was an obese, mentally sluggish girl who made every effort to keep her eyes shaded during the examination. From time to time she had mild, generalized "shaking" or "twitching" episodes, which she attributed to the light sensitivity of her eyes. The general physical examination elicited no abnormality except for enlargement of the uterus. No definite neurologic abnormalities were recorded at the time of admission, although adequate examination of the eyes was difficult because of intense photophobia. The gait was unsteady, but there was no ataxia of any of the extremities when tested individually.

Laboratory studies included a normal red blood cell count, hemoglobin, total and differential white blood cell counts, and urine. The standard Kahn reaction of the blood serum was positive (not quantitatively titered) as was the reaction to the Kolmer complement fixation test on two examinations. Lumbar puncture performed on the fourth hospital day showed elevation of the initial pressure to 230 mm. of cerebrospinal fluid. Examination of the fluid showed 37 lymphocytes, total protein 75 mg. per hundred cubic centimeters, colloidal gold reaction 5554433211 and a positive Kolmer complement fixation reaction with 0.5 cc. of spinal fluid (titration not done).

*Hospital Course.*—On bed rest the vomiting decreased in frequency, but the patient's mental sluggishness and unsteady gait remained unchanged. Occasional "twitching" episodes, which were believed not to be convulsive in nature, continued. At times pupillary responses seemed retarded and speech was described as slurred, but whether these were real or due to variations in interpretation is not clear. One examiner described haziness of the optic disks without definite elevation, but other cranial nerve abnormalities were not detected. On the eleventh hospital day (the last day of life) hyperactive tendon reflexes (bilateral) were recorded, and Babinski and Hoffman signs were present on the left. At this time a presumptive diagnosis of neurorecurrence with acute syphilitic meningitis was made and penicillin was begun, 60,000 units of crystalline G sodium penicillin being injected intramuscularly every three hours. Unfortunately, only one temperature observation was made between the first injection of penicillin and death, but six hours after the start of treatment (eight hours before death) the rectal temperature was elevated to 38.1 C. (100.6 F.). It is significant that this was the only elevation in temperature recorded during the entire eleven days of hospital observation. Thirteen hours after the first injection of penicillin the patient had a generalized convulsion, and one hour later was found dead.

At autopsy[6] the important findings, except for an 8 cm. fetus contained in the uterine cavity, were limited to the central nervous system. The brain weighed 1,240 Gm. The leptomeninges and blood vessels appeared normal, but over the convexity of the left hemisphere the convolutions were flattened and the sulci narrow. No pressure cone was apparent at the base of the cerebellum. On coronal section a subcortical lesion measuring approximately 3 by 2 by 2 cm. was found at the juncture of the left temporal and parietal lobes. The lesion was firm and rubbery in consistency, the central portion being a homogeneous lemon yellow color with a thin, irregular surrounding zone of pink containing scattered tiny areas of fresh hemorrhage. The left lateral ventricle appeared flattened and shifted to the right.

On histologic examination the homogeneous central area represented necrosis with complete loss of normal brain architecture. Toward the outer margin several thrombosed blood

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[1] (*a*) Tucker, H. A., and Robinson, R. C. V.: Neurosyphilitic Patients Treated with Penicillin: Probable Herxheimer Reactions, J. A. M. A. **132:** 281 (Oct. 5) 1946. (*b*) Stokes, J. H.; Steiger, H. P., and Gammon, G. D.: Three Years of Penicillin Alone in Neurosyphilis, Am. J. Syph., Gonor. & Ven. Dis. **32:** 28, 1948. (*c*) Callaway, J. L.; Noojin, R. O.; Flower, A. H.; Kuhn, B. H., and Riley, K. A.: The Use of Penicillin in the Treatment of Syphilis and of the Central Nervous System, ibid., **30:** 110, 1946.

[2] (*a*) Callaway, and others.[1c] (*b*) Dolkart, R. E., and Schwemlein, G. X.: The Treatment of Cardiovascular Syphilis with Penicillin, J. A. M. A. **129:** 515 (Oct. 13) 1945. (*c*) Moore, J. E.: Penicillin in Syphilis, Springfield, Ill., Charles C Thomas, Publisher, 1946, p. 57.

[3] Moore,[2c] p. 58.

[4] This was proved by subsequent follow-up (negative reaction to blood test at 10 and 17 weeks of age).

[5] The preceding information was confirmed by written abstract. The diagnosis of early latent syphilis was based presumably on the patient's age and the presence of syphilis in her husband to whom she had been married for about one year. The fact that seroreversal occurred is in keeping with short duration of infection.

[6] Autopsy was performed by Dr. Francis E. Pennington, Department of Pathology, St. Louis City Hospital.

vessels and scattered areas of recent hemorrhage were present. The surrounding zone was composed of chronic inflammatory tissue with a dense infiltration of mononuclear cells, intense engorgement of blood vessels and pronounced perivascular cuffing. In many areas polymorphonuclear leukocytes made up a considerable proportion of the cellular infiltration. Sections from other portions of the brain showed normal-appearing meninges, blood vessels and parenchyma.

CASE 2.—E. J., a 44 year old white male factory inspector, was admitted to the St. Louis City Hospital on Oct. 1, 1947. Because he was stuporous, the history was fragmentary, and even the onset of the present illness could not be accurately dated. For over a year and a half he had complained of chronic malaise and listlessness to the extent that he had felt unable to work. Nine months before admission he had injured his back in a fall downstairs. Shortly thereafter a chronic morning cough developed productive of 15 to 30 cc. of yellowish sputum, which on two occasions (two months and one week before entry) had contained small amounts of blood. For two months he had complained of pain low in the back, and anorexia, weight loss and irritability had been present for one month. During the two weeks preceding admission he had felt too ill to get out of bed, and for one week there had been chills and fever. Severe occipital headache developed three days prior to entry, and eight hours before admission he had complained of a stiff neck. Two hours later he lapsed into semicoma.

The information was obtained subsequently that he had had a genital lesion fifteen to twenty years previously and that three years ago a serologic test for syphilis elicited a positive reaction on routine examination, but antisyphilitic treatment had never been received.

On physical examination the temperature was 40.0 C. (104.0 F.), pulse rate 120 per minute, respiration rate 28 per minute and blood pressure 110 mm. of mercury systolic and 60 diastolic. The patient was comatose and obviously critically ill. There was no body rash and no petechiae were seen on the mucous membranes. The ocular fundi appeared normal. Signs of consolidation (decreased resonance, bronchial breath sounds, and increased voice transmission) were described over the upper lobe of the right lung. The heart was considered to be of normal size; a faint (grade I) systolic murmur was heard at the cardiac apex. There was slight clubbing of the fingers of both hands. On neurologic examination the neck was stiff and Kernig's sign was present.

Laboratory studies showed mild normocytic anemia, 24,000 white blood cells with 2 per cent juvenile forms, 4 per cent stabs and 82 per cent segmented polymorphonuclear leukocytes, 4 per cent lymphocytes and 1 per cent monocytes. The urine contained a trace of protein. The standard Kahn flocculation and qualitative Kolmer complement fixation reactions of the blood serum were positive. The cerebrospinal fluid was cloudy and contained 4,100 cells, all of which were polymorphonuclear leukocytes. Bacteria were not demonstrated on direct smear, and cultures of the spinal fluid and of the blood remained sterile. Sugar was reported absent from the spinal fluid.

*Hospital Course.*—A presumptive diagnosis of meningococcic meningitis was made, and antimicrobial therapy was instituted. Crystalline G sodium penicillin, 20,000 units, and streptomycin, 100 mg., were instilled into the lumbar sac at the time of the first puncture. Systemically, crystalline G penicillin, 50,000 units, was injected intramuscularly every three hours, and sodium sulfadiazine was administered subcutaneously in a total dosage of 15 Gm. during the first twenty-four hours. At the end of this time consciousness had been regained and the temperature had fallen to 38.5 C. (101.3 F.). The cerebrospinal fluid now contained 4,800 polymorphonuclear leukocytes, 34 mg of sugar per 100 cubic centimeters and again no bacteria on smear. Penicillin and sulfadiazine were continued parenterally, and recovery from his acute illness seemed well under way, when, forty-nine hours after admission, he suddenly vomited a large quantity of bright red blood and died.

At autopsy,[7] the important findings were related to the aorta, where two saccular aneurysms were found in the descending portion. The proximal aneurysm, 2 cm. in diameter, was adherent to and had ruptured into the esophagus. The distal aneurysm, measuring 6 by 5 cm., projected posteriorly against the thoracic vertebrae, but erosion of the vertebral bodies was not present. The remainder of the aorta from the base of the aortic valve to the bifurcation exhibited extensive linear wrinkling and scattered raised yellow plaques.

The incidental gross findings included fibrosis of the upper lobe of the right lung with dense adhesions obliterating the pleural cavity in this region. Over the vertex of the brain there was a thin layer of cloudy yellowish exudate which was sterile on postmortem culture. The stomach was distended with approximately 2,000 cc. of fresh blood; the remaining viscera were pale.

On microscopic examination, hemotoxylin and eosin stained sections of the aorta showed mild to moderate thickening of the intima and extensive destruction of the media with focal collections of mononuclear cells. The vasa vasorum were surrounded by nests of similar cells. Sections through the site of rupture showed necrosis of the aneurysmal wall and of all layers of the esophagus.

## COMMENT

In early syphilis, Herxheimer reactions are common, occurring in 59 per cent of one penicillin-treated series.[8] These invariably occur early, within the first twenty-four hours after the initial injection, and are neither serious nor a contraindication to continued treatment. When treatment has been initiated with the usual dosages, it is apparently an all or none phenomenon, since recurrences of the reaction are not observed.[9] In penicillin-treated late syphilis, neurosyphilis constitutes the chief hazard and Herxheimer reactions (clinical and/or febrile, but predominantly the latter) have been reported in as high as 75 per cent of patients with dementia paralytica.[10] From the clinical standpoint convulsions and acute mania constitute the two most alarming types of reaction thus far described. Convulsions, severe and prolonged, have been observed in 2 patients by Tucker and Robinson,[1a] and similar reactions were reported by Stokes and associates.[1b] Callaway and his co-workers[1c] have described acute maniacal episodes occurring shortly after the institution of penicillin, and we have observed two similar instances. To our knowledge no report has thus far appeared on the treatment of gumma of the brain with penicillin, although we have treated one such patient without the occurrence of the Jarisch-Herxheimer phenomenon.

In the first patient herein reported the evidence favoring a focal reaction at the site of the intracerebral gumma as the immediate cause of death seems so convincing as to be almost irrefutable. Present knowledge of the biology of syphilis lends support to the hypothesis that precocious tertiarism, as exemplified by this patient, would constitute a situation ideal for the development of an intense focal reaction following the administration of a potent antitreponemal agent such as penicillin. It is true that the patient was seriously ill and that there had been no favorable progress during the ten days of observation, but her condition had not been considered critical. Of crucial importance from the standpoint of substantiating the occurrence of a Herxheimer reaction was the elevation of body temperature to 38.1 C (100.6 F.) six hours after the first injection of 60,000 units of crystalline G sodium penicillin and eight hours prior to sudden death.

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[7] Autopsy was performed by Dr. Albert H. Braden, Department of Pathology, St. Louis City Hospital.

[8] Moore, J. E.; Mahoney, J. F.; Schwartz, W.; Sternberg, T., and Wood, W. B.: The Treatment of Early Syphilis with Penicillin: A Preliminary Report of 1418 Cases, J. A. M. A. **126:** 66 (Sept. 9) 1944.

[9] Farmer, T. W.: The Jarisch-Herxheimer Reaction in Early Syphilis Treated with Crystalline Penicillin G, in Symposium on Recent Advances in the Study of the Veneral Diseases, Washington, D. C., April 8-9, 1948.

[10] Hoekenga, M. T., and Farmer, T. W.: The Jarisch-Herxheimer Reaction in Neurosyphilis Treated with Penicillin, in Symposium on Recent Advances in the Study of the Veneral Diseases, Washington, D. C., April 8-9, 1948.

Unfortunately, objective criteria have not thus far been established for the histologic diagnosis of a Herxheimer reaction in late syphilis, although Sheldon and Heyman [11] have recently described acute changes, identified by serial biopsies, in the moist genital lesions of secondary syphilis accompanying Herxheimer reactions due to penicillin. The reported changes include engorgement of blood vessels, edema and infiltration with polymorphonuclear leukocytes. In our opinion similar changes are present in the zone of reaction surrounding the gumma in our own patient, and Sheldon,[12] after reviewing the sections, concurred.

In cardiovascular syphilis the occurrence of the Herxheimer reaction following penicillin (or any other antitreponemal agent) is less well documented than in neurosyphilis. Two series of penicillin-treated patients, both small, have thus far been reported in the literature. Russek and associates [13] described their experiences in 15 patients with cardiovascular syphilis, 4 of whom had aortic aneurysm and 11 "syphilitic aortitis." One patient with an aneurysm, who previously suffered angina only on effort, experienced intermittent substernal pain at rest on the third day of penicillin therapy (40,000 units every two hours). This subsided despite continuation of treatment. No reactions were described in the remaining 14 patients, although specific mention of fever is totally lacking. The authors' failure to define their criteria for the diagnosis of syphilitic aortitis, a notoriously difficult clinical diagnosis, in 11 patients also detracts from the value of the report.

In the second series Tucker and Farmer [14] treated 34 patients (25 with syphilitic aortic regurgitation, 9 with aortic aneurysm) with varying initial doses of penicillin, one group with small doses (500 to 3,000 units), the other with large (25,000 to 100,000 units). Five patients had febrile reactions (without regard to initial dosage) within the first sixteen hours of treatment, which the authors ascribed to concomitant symptomatic neurosyphilis rather than to aortic syphilis. Two patients with angina of long standing had attacks of usual frequency and severity during and subsequent to penicillin therapy.

On the other hand, three groups of observers have reported 4 patients in each of whom circumstantial evidence suggested the possible occurrence of a Herxheimer reaction. In one of Dolkhart and Schwemlein's [2b] 2 patients, the complicating factor of rheumatic heart disease was present. In this patient, who had previously had angina on effort, precordial pain developed at rest on the second day of penicillin therapy, followed by episodes of ventricular extrasystoles, and further penicillin was not administered. The second patient with tabetic neurosyphilis and syphilitic aortic regurgitation, while receiving penicillin for an intercurrent infection, experienced on the third day of treatment precordial pain, for the first time in six years, and penicillin was discontinued. Callaway [1c] has reported 1 patient with syphilitic aortic regurgitation who was thought to have ruptured an aortic cusp ten days following the completion of penicillin therapy, and Moore [2c] has described a striking postmortem finding in 1 patient with dementia paralytica and syphilitic aortitis who died, presumably of cardiac failure, on the fourth day of combined malaria and penicillin therapy. At autopsy extensive syphilitic aortitis was present, and each plaque contained a large fresh hemorrhage.

The evidence for considering these as cardiovascular Herxheimer reactions is admittedly flimsy, and in our own patient conclusive proof cannot be presented. Undoubtedly the aneurysms had been present for some time and, almost certainly, spontaneous rupture would not have been long delayed. Nonetheless, the background of untreated syphilis of many years' duration and, as demonstrated at autopsy, the advanced syphilitic involvement of the entire aorta including the two large saccular aneurysms would predispose, if a Herxheimer reaction occurred, to precisely the type of fatal outcome that resulted, i. e., rupture of an aneurysm. McDermott [15] in discussing cardiovascular Herxheimer reactions has recently pointed out that the pathologic processes, or at least the demonstrable numbers of T. pallidum, are quite different in the syphilitic aorta [16] as compared to certain types of neurosyphilis, e. g., the brain in untreated dementia paralytica. In the aorta spirochetes are demonstrable with great difficulty by histologic methods,[17] while in the brain they may be present in large numbers.

It is also true, however, that the pathogenesis of the Jarisch-Herxheimer reaction is poorly if at all understood, and that a definite relationship between T. pallidum and the reaction itself has not been established. Such a relationship, however, seems at least probable, but whether this will prove to be in terms of numbers of organisms present, activity of organisms (multiplying versus resting), or, on the other hand, is dependent on such host factors as immunity or hypersensitivity is completely unknown at present.

In our patient any febrile reaction coincident with a Herxheimer phenomenon was masked by the fever associated with the purulent meningitis. The time relation between the initial injection of penicillin and death is compatible, we believe, with therapeutic shock. Although the febrile component of the reaction in late syphilis has usually been completed by the end of thirty-six hours, to our knowledge no information exists as to the time relations of the focal reaction at the site of the lesions. That the tissue phase may be retarded in comparison with the febrile response seems not only possible but likely. That coincidental rupture of an aneurysm should occur at a time when recovery from meningitis was well under way and when the strain on the cardiovascular apparatus was probably

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11. Sheldon, W. H., and Heyman, A.: Morphologic Studies in Syphilitic Lesions During the Herxheimer Reaction, in Symposium on Recent Advances in the Study of the Venereal Diseases, Washington, D. C., April 8-9, 1948.

12. Sheldon, W. H.: Personal communication to the authors.

13. Russek, H. I.; Cutler, J. C.; Fromer, S. A., and Zohman, B. L.: Treatment of Cardiovascular Syphilis with Penicillin, Ann. Int. Med. 25:957, 1946.

14. Tucker, H. A., and Farmer, T. W.: Penicillin in Cardiovascular Syphilis: Early Reactions to Administration, Arch. Int. Med. 80:322 (Sept.) 1947.

15. McDermott, W., in discussion on the Jarisch-Herxheimer Reaction, in Symposium on Recent Advances in the Study of the Venereal Diseases, Washington, D. C., April 8-9, 1948.

16. Except perhaps in so-called gummatous aortitis.

17. Indeed, Frazier and his co-authors (Hu, C. K.; Liu, Y.; Chen, K. D., and Frazier, C. N.: Isolation of Virulent Treponema Pallidum from Human Aorta Thirty-Two Hours After Death from Cardiovascular Syphilis, Am. J. Med. 1:301, 1946) reported the isolation of T. pallidum by animal inoculation from the human aorta for the first time in 1946.

lessening seems remote. However, the possibility that rupture was coincidental cannot be categorically denied.[18]

The prevention of Herxheimer reactions requires further study. Considering the many thousands of patients who have already been treated with penicillin, the number of reported serious reactions has been small indeed, and whether preventive measures should be routinely attempted is open to question. Certainly in gumma of the larynx and of the brain (when recognized), where Herxheimer reactions may be fatal, probably in dementia paralytica and in primary optic atrophy, and perhaps in cardiovascular syphilis, attempts at prevention should be considered. Since Herxheimer reactions in late syphilis have been described even when treatment has been initiated with small doses of penicillin,[19] preliminary injections of a bismuth compound would be the logical choice, for, although therapeutic shock has been described following the use of this drug,[20] relatively few are on record. In neurosyphilis Moore[21] has suggested the use of one or more preliminary induced paroxysms of fever (malaria, hypertherm) before administering penicillin.

### SUMMARY

Two instances of sudden death occurring in patients with late syphilis soon after the institution of penicillin therapy are reported. In one patient, with a gumma of the brain who died fourteen hours after the initial injection, collateral evidence supporting the occurrence of a Herxheimer reaction is conclusive, and that death occurred as a direct result seems certain. In the second patient with rupture of an aneurysm forty-nine hours after the institution of penicillin, the evidence in favor of a fatal Herxheimer reaction is suggestive.

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[18] In fact, McDermott[15] has observed such a coincidence, a patient with a *dissecting* aneurysm which ruptured during convalescence from pneumococcic meningitis.

[19] Olansky, S.: The Herxheimer Reactions of Relatively Small Doses of Penicillin, J. Ven. Dis. Inform. **28:** 26, 1947.

[20] Kampmeier, R. H.: Essentials of Syphilology, Philadelphia, J. B. Lippincott Company, 1943, pp. 109-110.

[21] Moore, J. E.: The Jarisch-Herxheimer Reaction in Neurosyphilis, read at the meeting of the American Association of Physicians, Atlantic City, May 4, 1948.

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**Fluorine in Newburgh's Water Supply.**—In Newburgh, New York, about fifty-one pounds of sodium fluoride—a highly toxic chemical—are added daily to the public water supply. Dissolved in the three million gallons of water used daily for all purposes in Newburgh, this amounts to about one part per million or less of fluorine in the water. This practice has been in effect for three years and will continue for another seven. Far from feeling any apprehension, the 30,000 inhabitants of this city consider themselves exceptionally fortunate. They are participating in a scientifically controlled experiment demonstrating the ability of fluorine, in trace amounts, to reduce the incidence of the most common disease of civilized—dental caries. . . . The Newburgh experiment, together with several similar ones in . . . other cities in the United States and . . . Canada, represents the first attempt to prove the fluorine-dental caries relationship by direct experimental methods. For the first time fluorine is being *added* to waters normally nearly fluorine-free in an attempt to reproduce conditions observed in areas where the water naturally provides optimal amounts of this element. As a further check on the results obtained for each city participating in this experiment there is a control city—a nearby city comparable in all respects (water-supply, population groups, climatic conditions, economic status and common sources of food supply), except that its water supply is fluorine-free.—Ruth Woods, The Role of Fluorine in the Diet, *Borden's Review of Nutrition Research,* March 1948.

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## Special Article

# SURVEY OF MEDICAL CARE AMONG THE UPPER MIDWEST INDIANS

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The American Medical Association was asked by the Honorable Julius A. Krug, Secretary of the Department of the Interior, to investigate the medical care of those who are wards of that department. The investigation was divided according to various geographic areas and was carried on by several groups of physicians. We constituted a committee (W. F. B., chairman) to investigate medical care among the Upper Midwest Indians.

### THE MEDICAL OFFICER

It is obvious that the fundamental factor in the medical care of the Indian is the medical staff. We were very much interested, therefore, in meeting agency physicians and noting the character of their professional work. While in many instances professional standards of medical officers in the Indian Service are not of the highest type, nevertheless, we gained the impression that they are doing a rather good job. We were impressed with their loyalty to the Indian Service, their interest in professional problems and their human interest in their patients. In fact, they must have some kind of missionery spirit in order to help them carry on their work, in view of all the difficulties and deficiencies with which they have to contend.

Inability to secure enough physicians to fill the agency needs is the chief cause of most deficiencies existing in medical care of the Indian. Although two or three physicians are needed in most agencies, only one has been available in recent years and in several areas there is none. In some agencies the medical officer has to work day and night without relief, to the detriment of his health, as well as of the character of his work. The work of the medical officers is divided into three main activities, namely, hospital, field and outpatient services. When only one physician is available, the field service naturally suffers most; in fact, it often becomes nonexistent. The field service furnishes a type of practice similar to that of the general practitioner when engaged in house calls and is an important function in giving good medical and sanitary care. In some agencies the field service is taken care of entirely by nurses who, of course, lack medical training. The outpatient work is of equal importance, but often it is hurried and slighted because of pressure of other duties. In many hospitals

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This report embodies impressions gained in the course of the survey made by the committee, together with recommendations which are suggested for improvement of the service.

In the course of its investigation the committee was assisted locally by Dr. A. D. McCannel of Minot, N. D., Dr. J. F. Replogle of Lander, Wyo., and Dr. T. F. Riggs of Pierre, S. D.

Secretary and Executive Officer of the Minnesota State Board of Health (Dr. Chesley), former President of the Minnesota State Medical Association and Director of the Willmar Clinic (Dr. Branton) and recent member of the Board of Trustees of the American Medical Association (Dr. Braasch).

The agencies were visited in the following order: Turtle Mountain Agency [illegible] Fort Peck Agency at Poplar, Mont.; Fort Belknap [illegible]; Blackfeet Agency at Browning, Mont.; Holy [illegible] gency at St. Ignatius, Mont.; Crow Agency [illegible] River Agency at Fort Washackie, Wyo.; Sioux [illegible] S. D.; Pine Ridge Agency at Pine Ridge, [illegible] y at Rosebud, S. D. Subsequently, the followi[illegible] and South Dakota were visited: Cass Lake, Red Lake, White Earth, the *Indian Annex of the State Tuberculosis* Hospital at Walker and the Sisseton Agency Hospital at Sisseton, S. D.

there is no technician and the physician must do the laboratory work. There is insufficient financial recognition for loyalty and for superior work—an incentive which is necessary for the best type of medical service. An atmosphere of lack of permanency and of uncertainty pervades the agencies. Because of low salaries, overwork and inadequate facilities, many physicians have resigned. Considering the isolated communities and the lack of social advantages where the physicians live, the large amount of work they do and the handicaps they contend with, it is a wonder that any of them remain. A generous increase in salary would be required to recompense them for the sacrifices they are making.

The relation of the superintendent of the agency to the medical officer appears to be friendly and cooperative in most agencies. In fact, we gained the impression that most of the superintendents are men of excellent qualities and that they have unusual executive ability. Handicapped by a reduced budget, they seem to carry on with a remarkable degree of efficiency. In several agencies they have sacrificed much needed office help in order to provide enough money for the health activities of the agency. Although the superintendent is given the responsibility and the supervision of agency affairs, he usually leaves problems of health largely in the hands of the agency physician. However, it would be for the best interests of medical care if the direction of all medical activities, including those of the hospital and the nurses, were put in the hands of the medical officer so far as interests of over-all administration of the agency would permit. A physician naturally resents control in matters of health by a layman, even though it is largely on paper. Control of medical and hospital care would be an added inducement to the highest type of physician to enter the service. The added responsibility would stimulate him in his efforts to give the best medical service possible.

The situation at Fort Berthold, in North Dakota, is an extreme example of the lack of medical personnel in certain agencies. On this reservation are some 2,000 Indians. There is no physician and no field nurse. Medical care is given by one staff nurse in a small dilapidated hospital. The nearest doctor lives in a small village 28 miles away, and he is so overworked that he is unable to look after the Indians. In case of emergency, the patients are carried by automobile to the nearest government hospital, which is 125 miles away. It is evident that contract medical service is impossible in this area. The hospital and equipment, as well as the living conditions and salary, should be made so attractive that a competent resident physician could be secured.

### DIRECTION OF MEDICAL CARE

The question has been raised whether medical care of the Indians should continue under the supervision of the Bureau of Indian Affairs or whether some other control should be considered, such as the United States Public Health Service. In recent years the medical service has been under the guidance of Dr. Ralph B. Snavely, who was loaned by the United States Public Health Service for that purpose. Serving under Dr. Snavely are several physicians from the United States Public Health Service, who supervise regional medical care. Control of the agency medical officer and of the hospital and nursing staff is held in the Bureau of Indian Affairs. It is said that the United States Public Health Service will not continue the present system of supervision unless the entire field of medical care is placed under its control.

Such reorganization would bring up several questions: 1. Would it be expedient to have a governmental field, which is included in the Department of the Interior, directed by officials in an entirely different department? 2. Should the function of the United States Public Health Service be to carry on the duties of a general practice of medicine, which medical care of the Indians demands? Medical opinion definitely would not favor it.

To separate medical care from other activities of the Bureau of Indian Affairs would be difficult. It would be preferable to have the Bureau of Indian Affairs appoint a physician with experience in Indian medical problems, both as practitioner and as administrator, as over-all supervisor of medical care. It might be advisable to have the health budget in the Indian Service separate from the general budget. An advisory committee of physicians, recommended by some national group such as the American Medical Association, could be of great service in solution of medical problems.

### NURSING STAFF

The nursing staff of the Indian Service is divided into two categories, namely, the hospital nursing staff and the field nurses.

*Hospital Nursing Staff.*—The hospital nursing staff is adequate in most hospitals, and the type of nurses in the service is definitely above the average. One of the main reasons for this is the high standard set and the efficient surveys made by the central nursing authorities in Washington. Several years ago, the salaries of the nurses were placed at a level which attracted nurses into the Indian Service and increased the length of time they were willing to remain in it. With recent increase in financial demands on nurses, it will be necessary to increase the present level of salaries in order to hold the staff nurses. The efficiency of the supervising nurses in the various hospitals is very evident. The general care of the patients and the thoroughness and cleanliness which exist in practically every hospital must be a source of pride to the Indian Service. Living in isolated areas, with lack of social advantages, these nurses make a real sacrifice in the conduct of their duties.

*Field Nurse.*—The work of the field nurse in the far flung Indian areas is essential to the health of their wards; in fact, in some ways it is of greater importance than that of the physician himself. Dollar for dollar, returns from the efforts of a field nurse in the care of health are greater than any other factor. Owing to the current scarcity of nurses, the number of field nurses in the service is insufficient for the needs. The physical and professional difficulties presented by a field nurse's duties, plus the isolation and climatic rigors of many Indian territories, have made it very difficult to secure sufficient personnel. Possibly the most important function of the field nurse in the Indian Service is that of household and sanitary adviser. The main ingredients of a successful field nurse are a personality which will gain the confidence of the Indian and a good share of common sense and diplomacy. It is open to question whether the high educational standards demanded for certification as a public health nurse are essential to duties of this kind. The basic training of a good practical nurse is sufficient for the nursing care required. A woman with a lot of common sense and some nursing experience, and one who understands and likes to work among the Indians—these are the essential qualifications. Such a woman can be of tremendous help in the care of the Indian. While one would hesitate to recommend the now discarded "field matron," yet one would also hesitate to advocate the other extreme, namely, an inexperienced college-bred social worker. Rather than wait for a supply of public health nurses, with the high standards of education now demanded of them, it would seem that a determined effort should be made to get women of the type described. It would be very desirable if Indian girls could become interested in this field work and could be given training for it. Among many Indian women in isolated areas, they would command a confidence which would not be given to a white woman. With the increasing number of intelligent high school graduates among Indian girls, training of them should become increasingly possible.

An example of the folly of rigid insistence on the high educational standards of a public health nurse is a situation which exists at Hays, Mont. This is a small community in the midst of the Indians of the Fort Belknap Agency and is situated about 35 miles from agency headquarters. There are excellent buildings and other facilities for a public health nurse and for agency medical care. Because of the inability to secure a nurse with the required standards, however, a vacancy has existed in this area for several years. There is available a certain nurse who has had excellent nurse's training and experience and who is familiar with the situation at Hays and with the peculiarities of the Indian population. However, she lacks a few months of the special training which are officially demanded of public health nurses, and permission to employ this nurse has been refused by authorities in Washington. The situation in Hays is almost of an emergency nature, and a directive should be forthcoming immediately which would permit appointment of the nurse in question.

### HOSPITALS

Although the hospitals in the agencies visited were erected twenty-five years or more ago, most of them have been kept up fairly well, are in good condition and are still serviceable. Owing to excellent management and nursing supervision, some of these hospitals are models of efficiency and cleanliness. Several hospitals were in some respects inadequate and partial reconstruction was indicated. Adequate x-ray and laboratory equipment was found to be lacking in many hospitals, and several needed modern sterilizing apparatus. Adequate facilities should be provided as soon as possible.

It will be necessary to replace the old structure at Poplar, Mont., which serves as a hospital for the Indians at the Fort Peck Agency. It is an old dwelling house which was remodeled into a hospital about forty years ago and is most inadequate. It has been suggested that this Indian hospital be rebuilt in Wolf Point, which is a larger adjacent community and which has several local physicians. The residents of Wolf Point propose that this hospital be used by both the Indian and white population. Such combined use of facilities will be discussed more fully later.

Perhaps in several instances, consolidation of several small hospitals into one large hospital should be considered. The consolidated hospital should have an enlarged and well trained staff and scientific equipment. This might be feasible if the distances are not too great and if year-round transportation is possible; such favorable conditions exist in some areas of Montana, South Dakota and Minnesota.

### HOSPITAL AND MEDICAL CARE IN COMMON WITH THE WHITE POPULATION

Integration of the Indian with his white neighbors would be encouraged by having the same hospital and the services of the same doctor for persons of both races. For example, there is an excellent hospital at the Fort Belknap Agency, which is situated only a few miles from Harlem, Mont. This community has no hospital, and the citizens would like to employ the hospital facilities of the agency. Since vacancies in the hospital frequently are as high as 50 per cent, the economic advantages of permitting the citizens of Harlem to use the hospital are evident. The physician in Harlem could cooperate with the agency medical officer in caring for both the Indians and the local white citizens. A somewhat similar situation in Wolf Point, Mont., has been mentioned previously.

The attitude of the adjacent population, white and red, toward such cooperation, however, varies. For instance, the residents of Lander, Wyo., would not care particularly to avail themselves of use of the Indian hospital, as long as they have access to their own hospital. On the other hand, at the Rosebud Agency in South Dakota, the Indians do not care to have the white population use their hospital.

Where the Indians have sufficient income to pay their way, private care by local doctors should be encouraged. As an illustration, many Indians under supervision of the Wind River Agency have income from oil lands sufficient to defray medical expenses. There is also no reason why the self-supporting Indian should not pay the usual hospital rates in the modern hospital situated at the agency.

### CONTRACT PRACTICE

Medical care in areas where there are not enough Indians to warrant a full time agency physician is provided through contract with private physicians practicing in the adjacent territory. Contract medical care seems to work out well in some areas, such as Fort Totten, N. D.; Riverton, Wyo., and Cloquet, Minn., although it is far from ideal. In some areas, however, the contract physician practicing in an adjacent community has been inefficient and medical care has been unsatisfactory. In isolated areas where large numbers of Indians need service, full time medical officers with modern hospital and nursing facilities are still essential to adequate medical care.

In view of budgetary limitations, contract practice has met with rather unfortunate results in some areas. As an illustration, in the area of Mille Lacs, Minn., the contract with a local physician to give medical care to the Indians was discontinued recently because of budgetary reductions. The several hundred Indians residing there are without funds and are receiving their medical care from an overworked local physician as charity. The county authorities claim they have insufficient funds to enable them to provide care for the Indians in the area and, furthermore, deny their responsibility. According to the regulations of the Minnesota State Welfare Board, the state is not responsible either, and, as a result, the medical care of Indians in this area is neglected. It would seem that the state and county could assume responsibility for the health and welfare of these few Indians. The Indian Service and state authorities must get together on their mutual responsibility and come to some understanding.

In an endeavor to economize, and possibly with a view to shifting responsibility, the Indian Bureau has been considering, for some agencies, replacement of the services of the medical officer by contract practice. Such replacement is being considered for the Indian agency at Sisseton, S. D. An arrangement is contemplated whereby a local practitioner, who has had experience in care of Indians, will take over the hospital care of the 2,000 to 3,000 Indians residing at that agency. It was also suggested that the hospital be managed by a local institution which would look after the patients on a contract basis. Careful study of this situation was made by the members of this committee, and we are agreed that the medical officer in the agency is providing an excellent service among the Indians and that the hospital is exceptionally well managed. The medical officer also is active in the field and in outpatient work, as a contract physician could not be. The agency physician has accomplished all this in spite of the fact that the general budget of the agency has been reduced to such an extent that to give adequate medical care is difficult. This committee is agreed that replacement of the medical officer at the Sisseton Agency by a contract physician would be unwise and that the work of the hospital there should continue as at present.

### MEDICAL PROBLEMS

The medical problems of the agency physicians are largely those of the general practitioner. He has to know something about all fields of medicine. Most of the medical officers recognize their limitations and call for consultation in difficult or obscure medical conditions. If nearby consultation is not available, patients who require it are sent to medical centers or university hospitals. The medical officer, in most agencies, does not attempt other than simple surgical operations. A few full time specialists in the employ of the Indian Medical Service make the rounds of the various agencies and render excellent service. If more specialists were made available, the medical service would be improved.

Sanitary conditions affecting Indian life are definitely substandard. Sporadic attempts have been made in the past to improve these conditions, but no consistent program of adequate sanitation has been followed. Practical sanitary surveys, carried out by sanitary engineers, are urgently needed. As a result of lack of sanitary conditions, many of the diseases common to white men are rampant among the Indians and require redoubled efforts on the part of medical officers to control them.

*Tuberculosis.*—The incidence of tuberculosis among the Indians always has been much higher than among the adjacent white population. Although in recent years there has been some improvement, the incidence still is too high. Contrary to general belief, the higher incidence does not seem to be due to greater susceptibility on the part of the Indian, but to lack of preventive sanitary conditions, failure of early diagnosis and insufficient medical and nursing supervision before and after hospitalization. Most of these deficiencies result largely from inadequate numbers of medical and field nursing personnel. In areas where these services are adequately supervised by the state board of health, as in Minnesota, the statistical improvement has been startling. Another factor which is not generally appreciated is that the Indian will respond to sanatorium treatment for tuberculosis as rapidly as, if not more rapidly than, his white brethren. It would be preferable to have a sanatorium available in the state in which the Indian lives. It is difficult enough to convince the Indian of the necessity for sanatorium treatment when the hospital is located nearby. State controlled sanatoriums are available in Minnesota and North Dakota, for treatment of Indians with tuberculosis. For strategic and economic reasons, the Indian patient in Minnesota is cared for in a separate wing of the state sanatorium. Provisions are being made in Montana for an addition of this type to the state sanatorium. At present, however, patients with tuberculosis in Montana and Wyoming are sent to a distant sanatorium, such as that in Rapid City, S. D., or Tacoma, Wash. The Sioux Sanitarium at Rapid City is a model for efficiency and good medical care.

Early recognition of tuberculosis among the Indians has been hampered by inadequate medical and nursing personnel. It has been helped recently in some areas by mass roentgen examinations. Early diagnosis also may be made by the wide awake field nurse, who has been taught to be on the lookout for early signs. The same nurse also can persuade the Indian patient to enter a sanatorium, and she can insure his recovery by observation and counsel after his discharge.

*Venereal Disease.*—Venereal disease is a common ailment with which the medical officer has to contend. Although limited in some isolated agencies, it is of frequent occurrence in others. Recent developments offer a standardized method of treatment of venereal diseases. Agency physicians, so far as resources permit, employ this treatment with good results. It might be well, however, to have a consulting venereologist review and criticize the therapeutic methods employed. An efficient state board of health can be of great help in controlling venereal diseases in areas where the Indians come in contact with the white population.

*Trachoma.*—Trachoma formerly was a curse among the Indians and caused as much disability as tuberculosis. The old treatment was painful and at best palliative. Since the employment of sulfonamide drugs the infection has been brought under control and in some areas has been largely eliminated. In a few areas, chronic infection remains among the older Indians, but the difference, compared with conditions in former years, is almost unbelievable.

*Dysentery.*—Dysentery is a common condition among the Indians, particularly those living in the more isolated agencies. Indian children frequently have severe forms of intestinal disease, which in most cases can be ascribed to faulty diet. The diet of the Indian, in spite of instruction and warnings, generally remains inadequate. In some agencies great quantities of berries are eaten during the berry season, with subsequent intestinal complaints. In some areas where the water supply is inadequate, ditch water is used for drinking and cooking, and frequently severe dysentery results.

*Obstetrics.*—Today practically all Indian babies are delivered in agency hospitals. Only a few years ago, midwives or old Indian women attended at childbirth. As one can well imagine, the rate of mortality of both mother and child was exceptionally high. The Indians themselves have learned of the advantages of hospitalization and now eagerly seek it. The result has been a remarkable improvement in mortality rates; in fact, complications of childbirth are now exceptional.

*Obligation of States in Care of Indians.*—It would seem that some of the states which harbor an Indian population do not fully appreciate their responsibility relative to the health and welfare of their Indian citizens and have done little to assume their obligations. Minnesota has led the way in cooperating with the Indian agencies in the care of the state's Indian citizens. The board of health of Minnesota and the boards of health of some other states have been interested in the welfare of Indians for many years. As a result of the efforts of these boards, the health of Indians has improved a great deal, as statistics will show. An outstanding service rendered by boards of health in several states has been the care of Indians suffering from tuberculosis. With the aid of a corps of efficient trained field nurses, tuberculous patients have been brought to sanatoriums and have been kept under observation after their discharge. Keeping of an adequate record of all tuberculous patients is no small part of the service rendered.

State boards of health have been active in caring for the health of Indians in other ways, such as child hygiene, care of crippled or disabled children, control of infectious diseases, prenatal and postnatal care, instruction as to sanitary conditions and dietary teaching. A health survey of a group of Chippewa Indians assembled for the wild rice harvest was made by the board of health in Minnesota several years ago, and the various diseases found were cataloged.

A federal budgetary shortage which prohibits necessary treatment of the tuberculous Indian is a calamity. This was the case in the Minnesota Chippewa Agency, which had insufficient federal funds this year to pay the moderate per diem hospital rates at the state tuberculosis sanatorium. As a result of this deficiency, 28 patients with positive sputum were dismissed from the sanatorium to return to their families. Every one of these patients was a possible source of infection to the relatives with whom he came in contact. This situation demands immediate correction.

Efforts have been made to have the entire medical care of the Indians, both therapeutic and preventive, become the obligation of the state in which they dwell. This responsibility would create many difficulties and would require active cooperation with state and county medical societies. The financial burden would be no small item in some states and would have to be met by federal grants in aid. This committee believes that the states in which the Indians reside should assume major responsibility for preventive medical care among Indians. Whether state authorities are in a position to assume therapeutic medical care and all other phases of Indian welfare is open to question.

*The Displaced Indian.*—One of the problems involved in the care of the Indian is the supervision of Indians who have left the reservation and gone to adjacent cities in order to take advantage of the comparatively high wages paid for labor. Two examples of the accompanying problems exist, respectively, on the outskirts of Rapid City, S. D., and at Havre, Mont. In both communities the migratory Indians squatted on dump heaps and neglected areas and were living in most inadequate quarters and under unsanitary conditions. The problem confronting Rapid City is particularly serious in that there are some 2,500 indigent or semi-indigent Indians located in the midst of a community of 25,000 persons. Their living quarters usually consist of small shacks, with inadequate windows and with no screens to protect them. Others live in tents or in huts made of refuse sheet metal. In order to secure even such quarters, it is necessary for some to pay as high as $20 a month rent. Water, plumbing and sewage are not available. Outhouses are few and far between, and in one instance a family of Indians was forced to pay $3 a month rent for the use of one. Living in these circumstances, the colony is a constant menace to the city as a possible source of disease. A few of the younger Indian girls were quartered in several houses of ill fame, located in the middle of the colony, giving the whole community a most unsavory reputation.

The Bureau of Indian Affairs holds that an Indian who leaves the reservation to live in some other area is no longer subject to its supervision and belongs to the community in which he settles. It is manifestly impossible for communities as small as Rapid City or Havre to assume the entire burden of permanently supporting and otherwise looking after such a large group of refugees. Although wages have lured many of the Indians to these areas, pay often is inadequate for their needs. Much of the money earned is spent in alcoholic excess. The economic responsiblity for these Indians remains unadjusted. Similarly, responsibility for the care of the squatter Indian's health remains uncertain, and neither the city nor the state desires to assume the burden. The Indians now depend on the charitable care of physicians practicing in the community. The resident physician at the Sioux Sanitarium, who is already overburdened with his duties, also gives of his services. The Bureau of Indian Affairs could hardly be held responsible for the situation. Solution of the problem should be assumed by state and county welfare commissions.

## SOCIAL AND ECONOMIC FACTORS

A discussion of medical care among the Indians is impossible without consideration of the economic and sociologic problems involved. The American Medical Association repeatedly has called attention to the fact that, in the maintenance of good health, medical care cannot be considered alone, since sanitary living conditions and adequate food, warmth and clothing are of even greater importance. In fact, outside of emergency situations, medical care alone would not be worth much without aid and cooperation relative to these other factors. In view of existing social conditions among the Indians, it is easy to understand why the level of their health is no higher than it is today. The truth is that the living conditions of most of the Indians are deplorable, and unless they are improved the work of the doctor and the nurse who care for them will remain largely handicapped.

Chief among the factors to contend with is the type of dwelling in which the Indian lives. While it is true that some of the more prosperous Indians live in acceptable houses, in the majority of cases the Indian's dwelling is too small, poorly ventilated and often dirty. Often two or more families will crowd into one small room. Although sporadic attempts have been made in certain localities to build better dwellings, they have been allowed to deteriorate.

Another factor which handicaps medical care is deficiency in or lack of the sanitary conditions which civilization demands. There is great need of frequent sanitary inspection and continuous regulation.

The living conditions of the Indian play a large part in the high incidence of tuberculosis and other diseases. A determined effort should be made to improve these conditions and subsequently to supervise the use of facilities provided, so that the Indian will not fall back into his old ways of living. Similar recommendations have been made in the past, but, largely because of lack of congressional appropriations, such recommendations have not been carried out as thoroughly as they should be.

The health of the Indian is intimately associated with still other factors of his life, such as education and social and economic conditions. These factors increase in importance in areas where integration of the Indian with his white neighbors is possible. Integration has been the goal of federal administration since the days of Jefferson, but development toward it has proved to be slow and difficult. It has succeeded only if the Indian's educational and economic opportunities have been on a level somewhat similar to that of his white neighbors.

The practice of encouraging communitywide participation in health activities among the Indians themselves is increasing. Health councils have been established in some tribes, with excellent results. In fact, in one instance a salaried board of health, composed of Indians, initiated ordinances which were approved by the entire tribe, and, as a result, sanitary and other living condition were improved and preventive medical measures were adopted. This development should be encouraged and expanded.

*Education.*—Much progress is being made in the education of Indian children. There is an increasing tendency to teach Indian and white children in the same schools, under the supervision of the state. Present educational policies, however, do not lead to a practical educational development. For instance, inability to earn a living lowers the moral stamina of many Indians and permits them to subside into alcoholism and unsanitary habits. If the educational training provided consisted of training in business, a trade or some special form of labor, which would permit the Indians to earn a living, improvement in health and in social well-being would follow. Opportunity should be given to the young male Indian to learn how to become an accountant, a silversmith or a road builder, and some of the girls should be given practical nurse's training, which they could use in many ways. Economic independence would stimulate a desire to maintain a healthy home, under sanitary conditions, and to live up to the elementary rules of personal care.

Among the many factors which hamper economic and social progress of the Indian, the following are deserving of comment: alcoholism, drug habits, illegitimacy and inadequate social and sanitary supervision.

*Alcoholism.*—As has just been indicated, one of the menaces to the health of Indians is the unfortunate addiction to alcoholic excess which is common to the males among them, particularly those of the younger generation. The excessive use of alcohol is a menace to both physical and moral health and a serious obstacle to progress. Temptation to illegal use of liquor, and difficulties in procuring it, act as incentives to its use. The laws prohibiting the sale of alcoholic beverages to Indians are so easy of circumvention that they are worthless, and it would be much better to abolish them. An educational program, including audiovisual means of showing the havoc, both physical and moral, resulting from intoxication, would be helpful.

*Drug Habits.*—The drug most frequently used by the Indian is peyote ("mescal button") which is obtained from the tops of a small narcotic cactus grown in the Rio Grande section of the United States and in Mexico. It is eaten by the Indian tribes of the Southwest in religious ceremonials, for the sense of well-being which it induces and to promote trances and hallucinations. The use of peyote has been a problem among Indians for many years. It has gradually spread so as to involve many of the Indians in the Northwest. Unfortunately, the Indian Bureau permitted use of peyote among the Indians several years ago on the grounds that it was part of an Indian religious ceremony. We are informed by the Narcotics Bureau of the United States Treasury Department that peyote is not covered by the Harrison Narcotic Act but that its use is prohibited by law in some of the southwestern states. It is high time that the sale and possession of this drug be restricted by a national law. It is a habit-forming drug and acts on the nervous system as a stimulant and narcotic. The drug usually is taken prior to festival dances and causes excessive stimulation for several hours. The following day the addict is left in an exhausted condition and is incapable of physical exercise or labor.

*Illegitimacy.*—Unfortunately, the Indian does not regard illegitimacy in the same way that his white brethren have been accustomed to regard it. He seems to take it as a matter of course. When it assumes the proportions that prevail in some areas, it becomes a definite sociologic threat. In some areas the percentage of illegitimate births is as high as 60 per cent. Lack of care of the child in already overcrowded living quarters increases the incidence of disease and results in an increase in mortality rate.

*Inadequate Social and Sanitary Supervision.*—If, in the course of the Indian's educational years, special emphasis were laid on the value of improved social and sanitary conditions, undoubtedly the status of his health would be improved. Social and sanitary supervisors would be needed to insure continued observance of healthful practices in these fields.

*The Budget of the Indian Bureau.*—As we reviewed the budgets provided for the Bureau of Indian Affairs in recent years, we were impressed with the lack of consistency on the part of Congress in meeting its financial obligations to the Indian. Adequate provision for essential needs is the best economy in the long run. Appropriations for the Indian Bureau have been reduced by Congress in recent years, apparently for two reasons: (1) to reduce federal expenditures and (2) to eliminate federal responsibility for the Indian. Failure to increase the budget of the Indian Bureau according to current demands has worked havoc with many of its activities. In no department of the Indian Bureau has this inadequate budget been a greater handicap than in the field of medical care. Although eventual elimination of Indian care as a federal responsibility may be desirable, it should be brought about gradually over the years and in areas where circumstances would permit it. It cannot be affected abruptly without injury to the welfare of the Indian. If the American people were aware of the failure on the part of Congress to appropriate sufficient funds for the health of the Indians, a justified wave of criticism would sweep the country.

## RECOMMENDATIONS

1. There is urgent need for a substantial increase in the budget of the Indian Bureau to meet the recent rise in costs of living and of all supplies. Of the various activities under the bureau medical service probably has suffered most, and financial provision for adequate medical care must be made immediately.

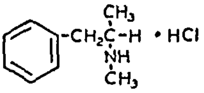
# Council on Pharmacy and Chemistry

## NEW AND NONOFFICIAL REMEDIES

*The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.*

Austin Smith, M.D., *Secretary.*

**METHAMPHETAMINE HYDROCHLORIDE.**—"Desoxyn Hydrochloride"-Abbott.—"Norodin Hydrochloride"-Endo.—$C_{10}H_{15}N.HCl$.—M. W. 185.69.—*d*-Desoxyephedrine hydrochloride.—The hydrochloride of d-1-phenyl-2-methylaminopropane. When dried over sulfuric acid for eighteen hours, it contains not less than 79.5 per cent nor more than 80.8 per cent of anhydrous methamphetamine, corresponding to not less than 98.9 per cent of methamphetamine hydrochloride. The structural formula of methamphetamine hydrochloride may be represented as follows:



*Actions and Uses.*—The actions of methamphetamine hydrochloride are essentially similar to those of amphetamine sulfate; they differ only in degree. It appears that the central stimulant effects of methamphetamine may be slightly greater and the circulatory action slightly less than with amphetamine.

Methamphetamine hydrochloride may be used in the treatment of narcolepsy, in the control of oculogyric crises and various other manifestations of postencephalitic parkinsonism, as an adjunct in the treatment of alcoholism and in the treatment of certain depressive conditions, especially those characterized by apathy and psychomotor retardation.

Methamphetamine hydrochloride has also been used as an adjunct in the treatment of obesity. It depresses the motility of the gastrointestinal tract and allays the sensation of hunger. It may assist some persons to adhere to a strict dietary regimen. It may also assist those in whom overeating is a response to a depressive state.

The contraindications to the use of methamphetamine are the same as those for amphetamine, namely, hypertension and cardiovascular disease. The drug should not be administered within four hours before sleep is desired.

*Dosage.*—It is advisable to begin with a small dose of 2.5 mg. of the drug and, if necessary, to increase the dose by increments of 2.5 mg. until the optimal response is obtained.

*Tests and Standards.*—

Methamphetamine hydrochloride occurs as a fine, white, odorless, crystalline powder, possessing a bitter taste. It is unaffected by light. It is soluble in alcohol, chloroform and water, but insoluble in ether. Methamphetamine hydrochloride melts between 170 and 175 C. A 1 per cent aqueous solution is neutral or slightly acid to blue litmus paper and has a specific rotation, [a]25/D, not less than + 14° nor more than + 20°, when the measurement is made on a solution of the salt (previously dried for 18 hours over sulfuric acid), contained in a 200 mm. tube.

Dissolve 0.3 Gm. of methamphetamine hydrochloride, accurately weighed, in 10 cc. of water and add 1 drop of methyl red T.S. If the solution is pink, it is changed to yellow by the addition of not more than 1.5 cc. of fiftieth-normal sodium hydroxide. Dissolve 50 mg. of the salt in 40 cc. of water and add 1 cc. of diluted hydrochloric acid and 1 cc. of barium chloride T.S.: no turbidity develops within 10 minutes.

Prepare a 1 per cent aqueous solution of methamphetamine hydrochloride to be used for the following qualitative identification tests: it responds to the test for chloride. There is no change in color on the addition of ferric chloride T.S. *(difference from epinephrine and phenylephrine).* There is no detectable odor of carbylamine when a portion of the solution is heated to boiling with alcoholic potassium hydroxide T.S. and chloroform *(difference from amphetamine, phenylpropanolamine and Tuamine).* Mercuric potassium iodide T.S. yields an amorphous precipitate [illegible] *ephedrine, epinephrine, phenylephrine,* [illegible] *which yield no precipitate; and from* [illegible] *crystalline precipitate).* Mercuric bichloride T.S. gives a crystalline precipitate *(difference from amphetamine, ephedrine, phenylephrine, phenylpropanolamine and Tuamine, which give no precipitate; and from naphazoline, which gives an amorphous precipitate).* Sodium hypochlorite T.S. gives a precipitate *(difference from epinephrine and phenylephrine).* Phosphotungstic acid T.S. yields a white precipitate *(difference from epinephrine* [illegible] *which give no precipitate; and from naphazoline,* [illegible] *precipitate).* Iodine T.S. gives a brown [illegible] *erence from amphetamine, ephedrine, phenyl-* [illegible] *amine, which give a brown precipitate upon adding an excess of iodine T.S.; and* [illegible] *phenylephrine and phenylpropanolamine, which give* [illegible] acid T.S. gives no precipitate *(difference from* [illegible] A 1 per cent solution of picrolonic acid yields a precipitate *(difference from ephedrine, epinephrine, phenylephrine and phenylpropanolamine).* Platinic chloride T.S. gives a precipitate *(difference from amphetamine, ephedrine, epinephrine, phenylephrine, phenylpropanolamine, phenylpropylmethylamine and Tuamine).* A 1 per cent solution of phosphomolybdic acid yields a yellow precipitate *(difference from naphazoline, which yields a tan-colored precipitate; from epinephrine, which yields a brown-colored solution; and from phenylephrine, which does not react).* Picric acid T.S. gives a crystalline precipitate *(difference from amphetamine, ephedrine, epinephrine, phenylephrine, phenylpropanolamine and Tuamine, which give no precipitate; and from phenylpropylmethylamine, which gives an amorphous precipitate).*

Dry 0.25 Gm. of methamphetamine hydrochloride, accurately weighed, over sulfuric acid for 18 hours: the loss in weight does not exceed 0.2 per cent. Ignite 0.25 Gm. of methamphetamine hydrochloride, accurately weighed: the residue does not exceed 0.1 per cent.

Transfer about 50 mg. of methamphetamine hydrochloride, accurately weighed and previously dried over sulfuric acid for 18 hours, to a 100 cc. micro-Kjeldahl digestion flask and add 20 cc. of distilled water. Connect the apparatus and add 20 cc. of 50 per cent sodium hydroxide solution. Distil with a rapid current of steam until about 150 to 200 cc. of distillate has been collected in a beaker containing 20 cc. of fiftieth-normal sulfuric acid solution and 2 drops of methyl red T.S. Titrate the excess acid with fiftieth-normal sodium hydroxide to a salmon-pink endpoint. Each cc. of fiftieth-normal sulfuric acid solution is equivalent to 0.002985 Gm. of anhydrous methamphetamine base: the amount of methamphetamine base found is not less than 79.5 nor more than 80.5 per cent.

Transfer about 0.1 Gm. of methamphetamine hydrochloride, accurately weighed and previously dried over sulfuric acid for 18 hours, to a beaker, and determine the chlorine content by following the method outlined for the assay of Sodium Chloride-U.S.P. Each cc. of tenth-normal silver nitrate is equivalent to 0.003546 Gm. of chlorine: the chlorine content found is not less than 18.9 nor more than 19.2 per cent.

Abbott Laboratories, North Chicago, Ill.

**Elixir Desoxyn Hydrochloride:** 20 mg. per 30 cc., 500 cc. and 4,000 cc. bottles.

**Solution Desoxyn Hydrochloride:** 20 mg. per cc., 1 cc. ampuls.

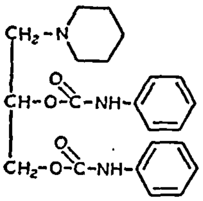
**Tablets Desoxyn Hydrochloride:** 2.5 mg. and 5.0 mg.

Endo Products, Inc., Richmond Hill 18, N. Y.

**Norodin Hydrochloride (Powder):** 1 Gm., 5 Gm. and 10 Gm. vials.

**Tablets Norodin Hydrochloride:** 2.5 mg. and 5 mg.

**DIPERODON.—Diothane-Merrell.**The *di*-phenylurethane of 1-piperidinopropane-2,3-diol.—Piperidinopropanediol *di*-phenylurthane.—$C_{22}H_{27}N_3O_4$.—M. W. 397.46.—Prepared by combining piperidine and glycerol monochlorohydrin in the presence of alkali, and reacting the piperidinopropanediol with phenyl *iso*-cyanate. The structural formula of diperodon may be represented as follows:



*Actions and Uses.*—See under Diperodon Hydrochloride (N.N.R. 1948, pp. 50-1).

*Dosage.*—See under Diperodon Hydrochloride (N.N.R. 1948, pp. 50-1).

*Tests and Standards.*—

Diperodon occurs as a fine, white, odorless, crystalline powder, which is nonvolatile and stable in air at ordinary room temperatures. The powder is tasteless but produces a slight sense of numbness. It is insoluble in cold water; slightly soluble in petroleum ether; and very soluble in acetone, alcohol, benzene, chloroform, ether and ethyl acetate. It melts between 78 and 82 C., and is very slowly decomposed by heating at 100 C. in air or in contact with water.

Dissolve about 0.9 Gm. of diperodon in 2 cc. of alcohol, add 2 cc. of diluted hydrochloric acid and dilute to 100 cc. with water. Mix the solution and test separate portions as follows: Add a few drops of mercuric potassium iodide T.S. to a 5 cc. portion of the solution: a yellowish-white precipitate forms. Add a few drops of gold chloride T.S. to a 5 cc. portion of the solution: a yellowish-orange precipitate forms *(distinction from butocaine and procaine, which yield brown precipitates, and from cocaine, dibocaine and Metycaine, which yield lemon-yellow precipitates; phenacaine yields a precipitate somewhat similar to that given by diperodon).* Add a few drops of potassium permanganate T.S. to a 5 cc. portion of the solution: a lasting precipitate, which turns from pink to brown within 1 minute, forms *(distinction from butacaine, cocaine, dibucaine, phenacaine and procaine, which do not immediately yield lasting precipitates).* To a 5 cc. portion of the solution add a few drops of diluted hydrochloric acid and a few drops of 10 per cent sodium nitrite solution followed by 3 cc. of a 2 per cent solution of β-naphthol in 10 per cent sodium hydroxide solution: a white precipitate changing to yellowish-white and finally to light orange forms *(distinction from butacaine and procaine, which yield red-brown precipitates).* Saturate 25 cc. of the solution with hydrogen sulfide: no precipitate or color develops.

Dissolve about 0.1 Gm. of diperodon in 1 cc. of sulfuric acid: the solution is colorless *(readily carbonizable substances).*

Ignite about 0.5 Gm. of diperodon, accurately weighed: the residue is not more than 0.2 per cent.

Dry about 0.5 Gm. of diperodon, accurately weighed, in a desiccator over phosphorus pentoxide: the loss in weight does not exceed 4 per cent.

Weigh, accurately, about 3 Gm. of diperodon and dissolve the sample in 10 cc. of ethyl alcohol previously neutralized to methyl red T.S. Add exactly 10 cc. of 0.1 *N* hydrochloric acid and 40 cc. of water. Warm gently, if necessary, to obtain a clear solution. Cool to room temperature, add 3 drops of methyl red T.S. and titrate to the bronze color of the indicator with 0.02 *N* sodium hydroxide. Each cc. of 0.1 *N* hydrochloric acid is equivalent to 0.03974 Gm of anhydrous diperodon: the amount of anhydrous diperodon found corresponds to not less than 94.0 nor more than 95.5 per cent of the sample weight.

The Wm. S. Merrell Company, Cincinnati

**Diothane Ointment with Oxyquinoline Benzoate:** Bulk and 28.4 Gm. tubes. Diothane 1 per cent and oxyquinoline benzoate 0.1 per cent, in an ointment base consisting of petrolatum, lanoline and mineral oil.

**OXYQUINOLINE BENZOATE.**—8-Hydroxyquinoline benzoate.—$C_9H_7NO.C_7H_6O_2$.—M. W. 267.27.—A compound consisting of a molecule of 8-hydroxyquinoline and a molecule of benzoic acid.

*Tests and Standards.—*

Oxyquinoline benzoate occurs as a yellowish-white, crystalline powder, possessing a characteristic odor and taste. It is slightly soluble in water; freely soluble in alcohol, benzene and ether; and soluble in vegetable and mineral oils. The *p*H of a saturated aqueous solution of oxyquinoline benzoate is about 4.0. It melts between 61 and 62 C.

Dissolve about 0.1 Gm. of oxyquinoline benzoate in 20 cc. of benzene and extract with two successive 5 cc. portions of sodium bicarbonate T.S. (collect the extracts for a later test). Wash the benzene layer with two portions of water and discard the washings. Dilute about 1 cc. of the benzene layer to 5 cc., with additional benzene. Add 5 cc. of water, 2 drops of ferric chloride T.S. and shake the mixture: an emerald-green color develops immediately in the water layer. Evaporate the remainder of the benzene solution in a stream of air: the melting point of the residue is 71-74 C. Acidify the sodium bicarbonate extract. Collect the precipitate on a filter, and wash and air-dry it: the product, which melts at 121-123 C., responds to tests for benzoic acid.

Ignite about 0.5 Gm. of oxyquinoline benzoate, accutately weighed: the residue is not more than 0.2 per cent.

Transfer about 0.3 Gm. of oxyquinoline benzoate to a suitable separatory funnel, add 25 cc. of benzene and 10 cc. of diluted hydrochloric acid; stopper the funnel and shake the mixture. Let the funnel stand until the layers separate cleanly and draw off the aqueous layer into a second separatory funnel. Rinse the benzene layer with two 5 cc. portions of water, combining the washings with the aqueous extract. To the second funnel add 25 cc. of benzene; stopper and shake vigorously. Let the funnel stand until the layers separate cleanly and draw off the aqueous layer into a third separatory funnel. Wash the benzene layer in the second funnel with two 5 cc. portions of water and combine them with the aqueous extract. Then: (A) Transfer the acid aqueous extract containing 8-hydroxyquinoline as the hydrochloride to a 500 cc. stoppered Erlenmeyer flask. Boil to remove benzene, cool to room temperature and add exactly 50 cc. of 0.1 *N* bromide-bromate solution. Stopper the flask, seal around the stopper with water and let the flask stand 15 minutes. Add water, bringing the volume to approximately 150 cc., and cool in an ice chest or ice water. Add 2 Gm. of potassium iodide or 10 cc. of potassium iodide T.S. Stopper the flask, let it stand for 5 minutes, and titrate the excess iodine with 0.1 *N* sodium thiosulfate solution. Each cc. of 0.1 *N* bromide-bromate is equivalent to 0.003627 Gm. of 8-hydroxyquinoline: the amount of 8-hydroxyquinoline found is not less than 51 nor more than 55 per cent. (B) Combine the benzene layer from the second separatory funnel with that in the first. Rinse the second funnel with 5 cc. of benzene followed by 10 cc. of water, combining both washings in the first separatory funnel. Add exactly 25 cc. of 0.1 *N* sodium hydroxide to the funnel containing the benzene and water washings, stopper and shake thoroughly. Allow the layers to separate cleanly and draw off the aqueous layer into a beaker. Wash the benzene in the funnel with two 5 cc. portions of water, combining the wash water with the aqueous layer in the beaker. Add 3 drops of phenolphthalein T.S., and back-titrate the excess sodium hydroxide with 0.1 *N* hydrochloric acid. Each cc. of the 0.1 *N* sodium hydroxide is equivalent to 0.01221 Gm. of benzoic acid: the amount of benzoic acid found is not less than 45 nor more than 47 per cent.

**ESTROGENIC SUBSTANCES (WATER INSOLUBLE)** (See New and Nonofficial Remedies 1948, p. 370).

The following dosage forms have been accepted:

Ayerst, McKenna & Harrison, Ltd., New York 16

**Solution Estrogenic Substances in Oil:** 10,000, 20,000 and 50,000 I. U. per cc. in corn oil, 10 cc. vials. Preserved with chlorobutanol 0.5 per cent.

Harrower Laboratory, Inc., Glendale, Calif.

**Solution Plestrin in Oil:** 10,000 I. U. and 25,000 I. U. per cc. in sesame oil, 1 cc. ampuls, 10 cc. and 30 cc. vials. Preserved with chlorobutanol 0.5 per cent.

U. S. trademark 233,746.

Smith-Dorsey Company, Inc., Lincoln, Neb.

**Aqueous Suspension Estrogenic Substances:** 20,000 I. U. per cc., 1 cc. ampuls and 10 cc. vials. Preserved with carbolic acid 0.5 per cent.

## REPORT OF THE COUNCIL

*The Council has authorized publication of the following report.*

Austin Smith, M.D., *Secretary.*

### ISOPENTAQUINE GENERIC NAME FOR (8-[4-ISOPROPYLAMINO-1-METHYLBUTYLAMINO]-6-METHOXYQUINOLINE)

The Council was requested by the Malaria Study Section of the U. S. Public Health Service to consider recognition of the generic term isopentaquine for the antimalarial compound known as Sn 13,274 (8-[4-isopropylamino-1-methylbutylamino]-6-methoxyquinoline). As a result of its deliberation, the Council voted to recognize the stated generic term. The Council calls attention to the fact that the drug wlil be available only as the oxalate salt, which should be designated as isopentaquine oxalate. In view of the fact that the base content of the salt is more uniform than the oxalate content, the labeling for any marketed product should bear a statement such as "Each tablet corresponds to ........ ........ isopentaquine base."

# Council on Physical Medicine

## REPORT OF THE COUNCIL

*The Council on Physical Medicine has authorized publication of the following report.*

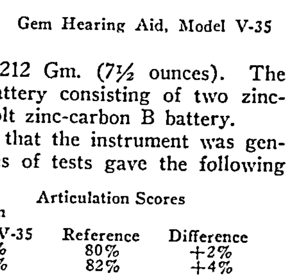
Howard A. Carter, *Secretary.*

### GEM HEARING AID, MODEL V-35 ACCEPTABLE

Manufacturer: The Gem Ear Phone Co., Inc., 80 Franklin St., New York 13.

The Gem Hearing Aid, Model V-35, is a so-called all in one wearable hearing aid. The ivory-colored plastic case contains microphone, amplifier and batteries. A metal clip is mounted in the center of the front through the microphone grill. A slender, flesh-tinted, plastic-covered receiver cord plugs into the center of the top of the case. Two wheel type controls, one for on-off and tone control, the other for volume control, are located at the two upper corners. The off position of the tone control is labeled and also can be identified by a flat segment of the wheel.

The outside dimensions of the case, exclusive of the clip, are 120 by 59 by 23 mm. (4¾ by 2⁵⁄₁₆ by ⅞ inches). The weight of the instrument, including batteries, receiver and cord, is 212 Gm. (7½ ounces). The instrument operates on an A battery consisting of two zinc-carbon dry cells and on a 22.5 volt zinc-carbon B battery.



Gem Hearing Aid, Model V-35

The Council obtained evidence that the instrument was generally well constructed. A series of tests gave the following results:

| Subject | Acoustic Gain | Articulation Scores<br>Gem Model V-35 | Reference | Difference |
|---|---|---|---|---|
| A | 45 db. | 82% | 80% | +2% |
| F | 52 db. | 86% | 82% | +4% |
| Average | | | | +3% |

The acoustic gain obtained by each subject was equal or nearly equal to the subject's own loss for speech. It is not expected that a hearing aid should make a subject's auditory acuity better than normal. The acoustic gain of this instrument was, therefore, at least 52 decibels, which exceeds the Council's minimum requirement. The articulation scores were roughly equal to those of the reference instrument, and both subjects reported the quality of the sound as good, clear and pleasant.

The Council on Physical Medicine voted to include the Gem Hearing Aid, Model V-35, in its list of accepted devices.

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SATURDAY, JANUARY 22, 1949

## OBITUARIES OF PHYSICIANS PUBLISHED IN 1948

During 1948 The Journal published the obituaries of 3,230 physicians, which was an increase of 190 over the number published in 1947. This number does not represent the total number of physicians who died during the year, as some reports were not received in time to be prepared for publication before the year ended.

The ages at the time of death of the 3,230 physicians ranged from 23 years to 100 years. Three died between the ages of 20 and 24, 43 between 25 and 29, 54 between 30 and 34, 63 between 35 and 39, 89 between 40 and 44, 138 between 45 and 49, 140 between 50 and 54, 237 between 55 and 59, 339 between 60 and 64, 471 between 65 and 69, 613 between 70 and 74, 475 between 75 and 79, 319 between 80 and 84, 161 between 85 and 89, 71 between 90 and 94 and 12 died after age 95. The average age at death in 1948 of 67.4 years continued the upward progression established by 65.3 years in 1945, 66.1 years in 1946 and 66.7 years in 1947. Except for the higher average age at death, there was no radical change in the age distribution of the decedents. In 1948 66 per cent of the decedents died at age 65 and over, whereas in 1947 64 per cent died in this age group.

The following analysis was based on the causes of death coded according to the "Manual of the International List of Causes of Death" (fifth revision). When more than one cause was stated in the obituary, primary and secondary causes of death were determined by the "Manual of Joint Causes of Death" (fourth edition). This method of classification is slightly different from that used in previous years.

Diseases of the heart accounted for 41 per cent of all deaths among physicians with a total of 1,338, of which 643 were caused by coronary occlusion, thrombosis and embolism, 149 by angina pectoris and other coronary diseases, 257 by valvular heart disease, myocarditis and endocarditis, 6 by rheumatic heart disease and 283 by other diseases of the heart.

Diseases of the nervous system caused 412 deaths. There were 390 deaths attributed to intracranial lesions of vascular origin; cerebral embolism, thrombosis and hemorrhage accounted for 381 of these deaths. Eleven deaths were due to Parkinson's disease and 5 to meningitis and diseases of the spinal cord. Cancer and other malignant tumors accounted for 348 deaths among physicians, while nonmalignant and unspecified tumors caused 10 deaths. There were 133 deaths due to cancer in the digestive organs, 43 in the respiratory system and 69 in the genitourinary system. Six deaths were caused by cancer of the skin and 4 by cancer of the brain. Diseases of the blood accounted for 41 deaths, of which 7 were due to anemia and 32 to leukemia. Arteriosclerosis caused 98 deaths, hypertension 13, aneurysm 22, other diseases of the arteries 14 and other diseases of the circulatory system 7 deaths.

Diseases of the respiratory system other than cancer and tuberculosis caused a total of 163 deaths among physicians, of which 121 were caused by bronchopneumonia, lobar pneumonia and pneumonia unspecified. Chronic bronchitis caused 3 deaths, asthma 3 and thrombosis, edema and congestion of the lungs 29 deaths. Tuberculosis of the respiratory system accounted for 22 deaths and tuberculosis of other systems and organs caused only 4 deaths. Fifty-seven physicians died of diabetes mellitus and 5 of acute rheumatic fever and chronic rheumatism.

Diseases of the digestive system other than cancer accounted for 114 deaths of which 35 were due to cirrhosis of the liver, 16 to ulcer of the stomach or duodenum, 11 to hernia and intestinal obstruction, 8 to diseases of the pancreas, 5 to peritonitis, 3 to appendicitis and 36 to other gastrointestinal conditions. Diseases of the genitourinary system other than cancer caused 135 deaths; various forms of nephritis 105, and diseases of the prostate 16.

Of the 45 deaths caused by miscellaneous diseases 5 were due to influenza, 5 to poliomyelitis and 11 to Hodgkin's disease.

Deaths resulting from accidents totaled 173; 50 were from motor vehicle accidents and 23 were from air transport accidents; 4 deaths were caused by drowning, 4 by conflagration and 11 by poisoning; 7 resulted from injury by firearms and 52 were due to falls.

Suicides accounted for 48 deaths; 13 by poisoning, 4 by hanging, 2 by cutting, 2 by jumping and 19 by firearms. Only 1 homicide was reported.

Senility was reported as the cause of 28 deaths and the causes of death of 63 physicians were not reported.

Contributing causes of death numbered 655. Arteriosclerosis was thus reported 114 times, coronary embolism, thrombosis and occlusion 40 times, other diseases of the heart 86, hypertension 78, pneumonia 54, nephritis and uremia 43 and intracranial lesions of vascular origin 41.

Twenty-three of the physicians whose obituaries were published were killed in action during World War II and 33 died while in military service. Seven were reported as having died while being transported as prisoners on a Japanese ship that was sunk, and 1 died in a prison camp in Japan. Three were killed in Germany, and 1 each at Iwo Jima, Normandy, Luzon, Okinawa, Guadalcanal, Admiralty Islands and Java. Of the deaths during military service 7 were caused by diseases of the heart, 10 by airplane accidents and 4 by motor vehicle accidents. Since the outbreak of World War II The Journal has recorded a total of 881 military deaths among physicians, of whom 313 were killed in action.

The average ages at death among physicians who died from some of the causes mentioned were: 74.3 years for pneumonia and influenza, 70.4 for intracranial lesions of vascular origin, 69.7 for nephritis, 65.6 for coronary occlusion, thrombosis and embolism, 67.4 for cancer and other malignant tumors, 64.5 for tuberculosis, 57.3 for accidents, 34.7 for physicians killed in action and 34.8 for those who died from other causes while in military service.

*Association Officers.*—The death of 1 former president of the American Medical Association was reported in 1948. Forty-two decedents had been members of the House of Delegates, 15 had been section officers, 1 had been a council member and 1 a chairman of a council. Among the deceased physicians there were 63 past presidents and 8 past secretaries of state medical associations and 284 past presidents, 1 president-elect and 46 past secretaries of county medical societies.

*Miscellaneous Positions.*—Two decedents had been university presidents, 4 had been presidents of medical colleges and 8 had been deans of medical schools. Two hundred and five had been professors and 108 teachers in medical schools. One of the deceased physicians had been a member of the National Board of Medical Examiners and 41 had served on state medical examining boards. One hundred and twenty-six were former members of the boards of education, 106 had served on boards of health, 269 had been health officers and 24 had been connected with state health departments. Among the decedents there had been 30 city councilmen, 6 aldermen, 23 legislators, 52 mayors, 64 coroners, 45 pharmacists and druggists, 7 dentists, 24 editors, 35 authors and 11 missionaries.

*Government Service.*—The obituaries published in 1948 showed that 2 of the decedents had served on the Mexican Border, 1 in the Boer War, 2 in the Philippine Insurrection, 54 in the Spanish-American War, 584 in World War I and 206 in World War II. Thirteen decedents had served with the armed forces of foreign countries. Two physicians had been Surgeon Generals, 72 had been in the Medical Corps of the United States Army and Navy and 29 had been in the Reserve Corps. Ten had served in the National Guard, 37 had been in the U. S. Public Health Service and 14 in the U. S. Public Health Service Reserve, 14 in the Indian Service and 34 with the Veterans Administration.

## THE CLINICAL TEACHING OF THE MEDICAL STUDENT

In the recent Inter-Professional Conference on Education for Professional Responsibility[1] modern clinical teaching of the medical student was discussed by James H. Means, Jackson professor of clinical medicine in the Harvard Medical School. In the medical schools of the United States teaching falls into the two main divisions of preclinical and clinical. The preclinical subjects—anatomy, physiology, biochemistry, pathology, bacteriology and immunology—are taught in the medical schools much as such subjects are taught in colleges generally. Thereafter begins the clinical training which is distinctive in medical education. The student now studies the patient in the flesh, and his interests change from the inanimate to the human animate. Means emphasizes that somehow there has developed in the student by this time a definite predilection of interest in organic disease. Usually the purely functional or psychogenic aspects of human behavior have not become of deep concern to him. "He still sees the patient as a collection of diseased organs rather than as a person in difficulty."

At the same conference John Romano,[2] professor of psychiatry in the University of Rochester School of Medicine and Dentistry, pointed out that the preclinical training of the medical student is more thorough in physics, chemistry and biology than in psychology, sociology, history and literature.

The teaching of clinical medicine differs from most other professional teaching in that three definite persons are concerned: teacher, pupil and patient. The teacher is responsible for conducting the teaching so that it benefits the patient as well as the student. Anything said within a patient's hearing "may be provocative of good or bad results, according to whether it is uttered skillfully or unskillfully." Means urges that "students should be made to understand all this before they ever come near a patient. They must be made to realize that to the patient they are doctors and that, as such, their utterances are important to him." The service of the student as clinical clerk and assistant in the care of patients is of great value in developing in him the professional conscience, clinical insight and understanding of disease. Means stresses also the great influence of the interviews and examinations of the patient by the clinical clerk in the development of the physician-patient relationship.

The actual responsibility placed on the student in his clinical training has steadily increased. As a rule patients are grateful to serve for the purposes of teaching and research. Teaching hospitals are preferred for internships and residencies. The clinical clerkship, actually an apprenticeship, as now conducted, is an effective introduction to the principles of practice. Means says: "As undergraduates, medical students are thirsty for knowledge. Also, they want to correlate it and make it practically useful to their patients. . . . Their approach to medicine is scholarly." As one encounters practicing physicians in graduate courses, however, one sees how their attitude toward professional work has deteriorated. One of the great problems of medical education, says Means, is how to make this scholarly attitude persist through life, how to insure that the physician and surgeon will continue professional without lapse into the merely vocational and commercial. Teachers of medicine, says Means, must set high examples in their own living. At this time mention only can be made of the increasing influence on maintenance of high standards in practice by the clinical and pathologic conferences by the staffs of our hospitals.

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[1] Education for Professional Responsibility: A Report of the Inter-Professional Conference on Education for Professional Respnsibility Held at Buck Hill Falls, Pennsylvania, April 12, 13 and 14, 1948. Pittsburgh, Carnegie Press, 1948.

[2] Footnote 1, p. 136.

### MUSCULAR FATIGUE AND PEPTIC ULCER

Complete physical rest is often recommended by internists as a valuable adjunct in the management of peptic ulcer. This precept was derived primarily from clinical experiences, with little supporting experimental evidence. Lillehei and Wangensteen[1] of the Department of Surgery, University of Minnesota, studied the effects of moderate muscular fatigue on the incidence and severity of histamine-provoked peptic ulcer in dogs.

Fifteen dogs given continuous muscular activity and injections of histamine were compared with 13 not subjected to the activity. Among the 13 nonfatigued control dogs, 10 showed normal gastrointestinal tracts. Three (23 per cent) showed mild duodenal ulcers or erosions. Among the 15 fatigued dogs, only 4 showed normal gastrointestinal tracts. Eleven (73 per cent) showed relatively severe gastric, duodenal or jejunal ulcers or erosions. In 6 cases multiple ulcers were noted, two of which had perforated, causing the death of 1 dog. These results are in accord with the prevailing clinical belief.

In order to determine the mechanism of this deleterious action of muscular fatigue, the Minnesota surgeons studied the effect of exercise on gastric secretion. Two dogs with Heidenhain type pouches were repeatedly tested on days of rest and on days of a twenty to thirty minute run on the treadmill. In all cases the volume of gastric secretion was reduced as a result of this exercise. This was accompanied by a reduction in the percentage of both free and total hydrochloric acid.

This result suggests that the ulcer-abetting effect of muscular fatigue is not due to increased action of the gastric juice. It is presumably due to some change in the susceptibility of the gastrointestinal mucosa, conceivably a result of a reduction in local blood supply. This is in line with previous investigations by Baronofsky and Wangensteen,[2] who found that in dogs the vasoconstriction produced by epinephrine-in-beeswax injections increases the ulcer diathesis by creating anoxic areas in the gastrointestinal mucosa.

## Current Comment

### A NEW PULMONARY DISEASE ENTITY?

An unusual pulmonary disease occurred in Oklahoma in 1943 and was described by Cain and his co-workers in 1947.[1] An outbreak of this peculiar condition in Arkansas has now been described by Washburn, Tuohy and Davis,[2] who called the condition "cave sickness" because of the feature common to the outbreaks. In none of the occurrences was there an etiologic diagnosis established. A study was conducted on 21 white male patients who represented the greater part of the 25 persons engaged in a treasure hunt in an abandoned chalk mine in Southwestern Arkansas in which excavation was started Sept. 12, 1947. At intervals beginning with the fourth and ending with the thirteenth day of operations, all who had spent any time in the cave became ill in varying degrees of severity. Only persons who had entered the diggings were involved in the outbreak. The disease was a febrile illness with pulmonary manifestations. Onset was sudden after a short prodrome of coryza and malaise followed by chills and fever. The rest of the symptom complex was headache, in some cases with retro-orbital pain, nuchal tension, nervous irritability, slight cough, chest pain, loss of weight and certain general complaints. All signs were confined to the chest, where sonorous inspiratory and expiratory rales were heard early in the illness. These later became moist and sticky and disappeared after coughing. Clinical laboratory studies did not yield any positive results. Roentgenograms of the chest were spectacular and in keeping with the prostration of the patients. Distribution of lesions was uniform from top to bottom, of consistent size and shape without tendency to confluence, with absence of pleural reaction and freedom of involvement of the lymph nodes. The opinion is expressed that it was induced by a particulate entity spread almost entirely by hematogenous dissemination in a single shower. The disease was self limited to six or seven days, when the men were able to leave their beds, although residual weakness and a residual dyspnea persisted from September to February. Three degrees of severity were noted. The authors conclude that this is a new or, at least, a previously inadequately described disease. Careful future observations should disclose the etiologic basis now that the condition is well described. In such a case, convincing experimental tests would appear readily available should the cave contain the etiologic agent.

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[1] Lillehei, C. W., and Wangensteen, O. H.: Proc. Soc. Exper. Biol. & Med. **67**: 49, 1948.

[2] Baronofsky, I., and Wangensteen, O. H.: Bull. Am. Coll. Surgeons, **30**: 59, 1945.

[1] Cain, J. C.; Bevins, E. J., and Downing, J. E.: An Unusual Pulmonary Disease, Arch. Int. Med. **79**: 626 (June) 1947.

[2] Washburn, A. M.; Tuohy, J. H., and Davis, E. L.: Cave Sickness: a New Disease Entity, Am. J. Pub. Health **38**: 1521 (Nov.) 1948.

# ORGANIZATION SECTION

## Washington Letter

*(From a Special Correspondent)*

Jan. 17, 1949.

### Health and Medical Bills Descend on Congress

More than one thousand bills were introduced during the first week of Congress, although the Senate was in session only three days and the House four. More than a score of the new measures deal with public health and medical care issues, with chief interest focused on revived attempt to pass compulsory sickness insurance legislation. Senators Murray, Wagner, McGrath, Pepper, Chavez and Taylor and Representative Dingell joined in sponsoring the Eighty-First Congress version of so-called Murray-Wagner-Dingell legislation. The Senate bill is S. 5 and the House measure is known as H. R. 783. They are identical with S. 1320, on which protracted hearings were held in 1947 and 1948 by the Senate Committee on Labor and Public Welfare. A companion bill (H. R. 345) is sponsored by Representative Celler.

Other bills included among the record-setting number of measures introduced during the first week of the session were: H. R. 267 and H. R. 785, sponsored by Representatives Priest and Dolliver, respectively, on federal subsidization of public health units at local and community level; H. R. 62 and S. 102, sponsored by Representative Fulton and Senator Tobey, respectively, to stimulate research into the cause, prevention and treatment of multiple sclerosis; H. R. 184 and H. R. 782, sponsored by Representatives Harris and Dawson, respectively, for establishment of a new department to administer health, education and welfare activities of the federal government; S. Res. 16, introduced by Senato Langer, calling for a Congressional study of the feasibility of instituting compulsory hospitalization and surgical care insurance for the more than 2,000,000 persons in federal employ; H. R. 488, sponsored by Representative Keogh, which would give military credit to Army medical officers for service performed as civilian employees in Army hospitals, and H. R. 922, sponsored by Representative Rogers (Mass.), which provides for inclusion of barbiturates under the federal narcotic laws.

In addition, miscellaneous bills were introduced on amendment of the Hill-Burton hospital construction act, for construction of additional veterans' hospitals and authorizing the commissioning of x-ray technicians in the Army and Navy medical departments. Numerous identical bills were filed on establishment of a National Science Foundation, one of whose functions would be to coordinate research in the medical and biologic sciences. Sponsors of this type of legislation include Representatives Priest, Harris, Celler and Wolverton.

Senator Neely introduced a cancer bill (S. 68) under which the President would be requested to mobilize "an adequate number of the world's outstanding experts . . . in a supreme endeavor to discover means of curing and preventing cancer." It authorizes the appropriation of $100,000,000 for research, educational and control measures. Neely supported similar legislation when he was a member of the House in the Seventy-Ninth Congress. A companion bill is expected to be introduced in the House this year by Representative Andrew J. Biemiller.

### Statement by Congressional Sponsors of Sickness Insurance

In his opening message to Congress on January 5, President Truman called for "prepaid medical insurance without further delay." Accordingly, this segment of the administration's proposed social security program was selected for earliest introduction. A joint statement issued by Senators Murray, Wagner and McGrath and Representative Dingell made the following claims for the new insurance bills (S. 5 and H. R. 783):

Eighty-five per cent of the population will be covered, self-employed persons being included along with salaried workers and wage-earners. Those eligible for benefits will be entitled to medical and dental services from general practitioners and specialists, home nursing care, hospital care, laboratory service, roentgenograms, "expensive prescribed medicines," eye glasses and "special appliances." There will be free choice of physician or dentist and the right to change one's choice. Participation by physicians, dentists, nurses and hospitals will be optional. "These guarantees apply to organized groups of practitioners, clinics, consumer cooperatives and similar health service plans as well as to individuals. Every hospital that participates is guaranteed freedom from governmental supervision or control." The bills guarantee that payments to providers of professional services will be "fair and adequate." "The method of payment is to be decided by those practitioners who furnish the service." There will be "grass roots" administration of the program, with the medical profession to be represented on local citizens' groups which would frame administrative policies, within federal and state limitations.

### Report Issued on Hill-Burton Hospital Project Approvals

Sixty-one per cent of the 416 applications approved to date for hospital construction grants under the Hill-Burton Act are for publicly owned facilities, according to a recent report by U. S. Public Health Service. The remaining 39 per cent are for general hospitals sponsored by nongovernmental, nonprofit organizations. However, in terms of construction costs, the 162 private projects represent a total estimated outlay of $128,851,236, compared with $118,310,246 for the 254 that will be owned and operated as public institutions. The bed totals, respectively, are 10,207 and 10,758. In New England, 94.1 per cent of the project applications came from nonprofit organizations. On the other hand, in seven Southeastern states the approved applications submitted by nongovernmental organizations comprised only 27 per cent of the total.

### Dr. Houssay Will Conduct Research at National Institutes of Health

Dr. Bernardo A. Houssay of Argentina, 1947 Nobel Prize winner for physiology and medicine, has arrived in the United States to begin a three month period of fundamental research at the National Institutes of Health, Bethesda, Md. His investigations will be concerned with problems of endocrine gland regulation and balance and the relationship between the endocrines and metabolism.

## Coming Medical Meetings

Annual Congress on Medical Education and Licensure, Chicago, Palmer House, Feb. 7-8. Dr. Donald G. Anderson, 535 N. Dearborn St., Chicago 10, Secretary.

National Conference on Rural Health, Chicago, Palmer House, Feb. 4-5. Dr. F. S. Crockett, 535 N. Dearborn St., Chicago 10, Chairman.

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Alaska Territorial Medical Association, Juneau, March 3-5. Dr. William P. Blanton, Box 2569, Juneau, Secretary.

American Academy of General Practice, Cincinnati, Netherlands Plaza Hotel, March 7-9. Mr. Mac F. Cahal, 231 W. 47th St., Kansas City, Mo., Executive Secretary.

American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, New York, Hotel Waldorf-Astoria, March 4. Dr. Norman N. Smith, 291 Whitney Ave., New Haven 11, Conn., Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, Palmer House, March 1-4. Dr. H. Kenneth Scatliff, 30 N. Michigan Ave., Chicago 2, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, March 14-17. Miss Thelma Webb, 1133 Medical Arts Bldg., Dallas, Executive Secretary.

International Post-Graduate Medical Assembly of Southwest Texas, San Antonio, Jan. 25-27. Dr. John J. Hinchey, P. O. Box 2445, San Antonio, Secretary.

National Conference on Medical Service, Chicago, Palmer House, February 6. Dr. John S. Bouslog, 1612 Tremont Place, Denver Colo., Secretary.

New Orleans Graduate Medical Assembly, New Orleans, Municipal Auditorium, March 7-10. Dr. W. D. Beacham, 1430 Tulane Ave., New Orleans, Secretary.

Southeastern Allergy Association, Durham, N. C., Washington-Duke Hotel, Jan. 22-23. Dr. Katharine B. MacInnis, 1515 Bull St., Columbia, S. C., Secretary.

# GOVERNMENT SERVICES

## ARMY

### RESEARCH AND DEVELOPMENT RESERVE GROUPS

The Department of the Army has established a program of particular interest to toxicologists and other scientists who hold reserve commissions and who are professionally engaged in teaching or research and development. The objectives of the program are to: (1) maintain the affiliation of scientists with the Organized Reserve Corps; (2) provide peacetime reserve assignments for these officers, enabling optimum use of their education, experience and skills; (3) furnish mobilization assignments which will fully use their talents, and (4) adequately prepare these officers for mobilization.

The Technical Services of the Department of the Army submit to these Research and Development Reserve Groups research problems and projects which pose an intellectual challenge to members of the group. Thus, the program provides members of each group with a type of training which is in keeping with their scientific and technical interests and competence rather than a traditional kind of training session in which scientists have little interest. To date, eighteen Research and Development Reserve Groups have been organized, and twelve are in process of organization. Others are in the initial stages of formation. Several of these groups have been formed in communities in which large universities, industrial research laboratories or private research foundations are located.

Provision is made to submit research projects of interest to chemists, physicists, engineers, geologists, geographers, psychologists, mathematicians, toxicologists, bacteriologists, serologists and scientists of other fields.

Reserve officers who are currently engaged in civilian research, college or university teaching, or industrial research or development, or who in the past have had specific research experience, are eligible to apply for assignment to an Organized Reserve Research and Development Group. A group may be organized in any locality where there are twenty or more qualified officer scientists who desire to participate in the program. A subgroup may be organized with ten qualified members. The program is under the general direction of the Research and Development Group, Logists Division, General Staff, U. S. Army. Inquiry about organization of an Organized Reserve Research and Development Group or about assignment to a group should be made of the Unit Instructor, O.R.C., or of the Senior Army Instructor, O.R.C., in the locality in which the officer resides.

### POSTGRADUATE INSTRUCTION

The following medical officers have been selected to attend postgraduate courses at the civilian institutions indicated: Col. Alexander C. Haff, radiology, Radiological Society of North America, San Francisco; Lieut. Col. Alonzo A. Towner, symposium on internal medicine, Mount Sinai Hospital, New York; Capt. Paul F. Guerin, pathology, Temple University Hospital, Philadelphia; Capt. Harold G. Page, general surgery, Mary Fletcher Hospital, Burlington, Vt.; First Lieutenants Sam A. Castro, intern training, Mercy Hospital, Chicago; Lowell H. Steen, intern training, Mercy Hospital, Chicago; Robert W. Morrissey, intern training, Iowa Lutheran Hospital, Des Moines; Frederick N. Talmers, intern training, City of Detroit Receiving Hospital, Detroit; Richard K. Blaisdell, intern training, Johns Hopkins Hospital, Baltimore; Albert J. Flacco, intern training, St. Luke's and Children's Medical Center, Philadelphia; Herschel J. Wells, medicine, Wayne County General Hospital, Eloise, Mich.; Arthur W. Samuelson, intern training, Grace New Haven Community Hospital, New Haven, Conn., and Barbara M. Knickerbocker, occupational therapy, National Foundation for Infantile Paralysis, Georgia Warm Springs Foundation, Warm Springs.

### COURSES IN PSYCHOTHERAPEUTIC MEDICINE

About seventy especially selected Army medical officers from a variety of medical installations recently completed a two weeks' course in psychotherapeutic medicine conducted at three Army general hospitals (Walter Reed, Washington, D. C.; Fitzsimmons, Denver, and Letterman, San Francisco). The instruction was led at these hospitals respectively by Drs. Benjamin H. Balser, New York; Jacob E. Finesinger, Boston, and Lawrence S. Kubie, New York, and each leader was assisted by a ten man team of civilian psychiatrists, psychologists and social workers.

The course, which was patterned on the initial 1946 experiment sponsored jointly by the Commonwealth Fund and the University of Minnesota, aimed at five specific goals: defining the patient-physician relationship, establishing the significance of a neurosis, pointing out the need for and methods of comprehensive diagnosis and therapy based on the interrelationship of emotional disturbance and somatic complaints, indicating the usefulness of the interview in both diagnosis and therapy and providing knowledge helpful in recognizing more malignant conditions. Throughout the course, major emphasis was placed on the art of medicine, which encompasses the whole man, as opposed to the current trend toward organ diagnosis and fractional therapy.

The students were uniformly enthusiastic about the course, which, while necessarily superficial, nevertheless "opened the door to an entirely new way of thinking." The response of the officers was so encouraging that plans are being made to repeat the course soon with chiefs of services and sections at Army hospitals as students.

### INSTITUTE OF PATHOLOGY

Brigadier W. L. Coke, Director General of Medical Services of the Canadian Army, visited the Army Institute of Pathology on November 26 and was guest of honor at a luncheon given by Brigadier General Raymond O. Dart, Director of the Army Institute of Pathology.

Dr. Maxwell L. Littman of the tropical medicine department of Tulane University School of Medicine, New Orleans, reported to the Army Institute of Pathology December 18 to act as consultant to the staff.

Dr. Webb Haymaker, chief, section on neuropathology, Army Institute of Pathology, recently addressed the staff of the Oliver General Hospital, Augusta, Ga., on the "Landry-Guillain-Barre Syndrome."

Dr. Walter G. Putschar of Charleston, W. Va., lectured at the Army Institute of Pathology Dec. 1, 1948, on "Pathology of the Intervertebral Disk."

### SAFETY RECORD CITED

The Department of the Army received the Award of Honor of the National Safety Council for distinguished service to safety. The award was presented to General Omar Bradley, Chief of Staff, in his office in the Pentagon in recognition of important reductions in the accidental injury rate in the Army's overseas operations during 1947. In the same ceremony, General Bradley presented the Army's Meritorious Civilian Service Award to Mr. Eliot V. Parker, Chief of the Army's Safety Branch, Personnel and Administration Division. Mr. Parker developed the worldwide Army safety program which affected great savings in money, man power and equipment and gave the Army a single unified attack against wasteful and unnecessary accidental suffering and loss.

# NAVY

## DR. SENSENICH'S LETTER TO YOUNG DOCTORS

More than 200 interns and residents now in training in various hospitals throughout the country have signified their interest in receiving a commission in the Naval Medical Corps Reserve. This interest is the result, the Navy's Bureau of Medicine and Surgery states, of a letter sent to all doctors under the age of 26 by the American Medical Association and signed by its President, Dr. Roscoe L. Sensenich. In the main, the letter offered information relative to a reserve commission in one of the medical departments of the armed services and advice to the young doctor in making a decision and a choice.

"The acceptance of a reserve commission," wrote Dr. Sensenich, "is evidence of willingness to serve and may be presented to the local board in support of your request for occupational deferment until the completion of your current year of internship or residency. Should you volunteer prior to being called for induction, you may make arrangements with the military services to postpone your active duty for a similar period."

## MEETING OF MEDICAL CONSULTANTS

The joint meeting of the honorary and reserve consultants to the Navy's Bureau of Medicine and Surgery January 28-29 at the Naval Medical Center, Bethesda, Md., will bring to Washington many of the nation's outstanding doctors. During the two day meeting, the honorary consultants will assist in formulating future policies for the Medical Department of the Navy, and the reserve consultants will advise and evaluate the present graduate medical training program as well as the present status of the Medical Corps Reserve. The honorary consultants, appointed by the Secretary of the Navy, act as an advisory board to the Surgeon General. The reserve consultants, appointed by the Surgeon General, many of whom are former Naval reserve officers, represent the specialties of the various American specialty boards and assist the Navy in establishing and maintaining a program which will provide training that meets the standards of these boards.

## FIRST ACTIVE DUTY

The following lieutenants (jg) in the medical corps reserve have been nominated for their first active duty to courses of instruction under the graduate medical training program, on completion of which they will serve on active duty: Frank M. Bryan, Fort Myers, Fla., to a residency in internal medicine at Bellevue Hospital, New York; John H. Heald, Billings, Mont., to a residency in radiology at Stanford University Hospital, San Francisco; Edward D. Loweecey, Pittsburgh, to a residency in internal medicine at the Naval Hospital, Philadelphia; Edward L. Mahon Jr., Kerrville, Texas, to a residency in surgery at the Naval Hospital, Bethesda, Md.; Francis P. Nash, East St. Louis, Ill., to a residency in surgery at St. John's Hospital, St. Louis; Charles O. Parker Jr., Waycross, Ga., to a residency in ophthalmology at the Naval Hospital, Bethesda, Md., and Robert H. Thompson, Dublin, Ga., to instruction in aviation medicine at the Naval School of Aviation Medicine and Research, Pensacola, Fla.

Lieutenants (jg) Donald H. McLean, New York, and Thayer A. Smith Jr., Short Hills, N. J., have been nominated for their first active duty in the medical corps reserve at the Naval Hospital of San Diego, Calif., and the Naval Shipyard, San Francisco, respectively.

## SAFETY CONFERENCE

The Navy held a regional safety conference at the Air Station, Jacksonville, Fla., January 11-13, at which the Bureau of Medicine and Surgery was represented, among others, by Captain H. K. Sessions of the Division of Preventive Medicine. At the dinner following the meeting, Captain Camille M. Shaar, M.C., commandant of the Naval Hospital, Jacksonville, gave the principal address.

## PERSONALS

The following reserve medical officers have been nominated for their first active duty: Lieutenants Haydon R. Duffy of Milwaukee to the Naval Hospital, Bremerton, Wash., and Robert J. Foley of Blair, Neb., to the Naval Hospital, Corpus Christi, Texas.

# PUBLIC HEALTH SERVICE

## DR. SZENT-GYÖRGYI A SPECIAL RESEARCH FELLOW

The U. S. Public Health Service announces that Dr. Albert Szent-Györgyi, winner of the 1937 Nobel prize for his isolation of vitamin C, and professor of biochemistry at the University of Budapest, is now working as a special research fellow at the National Institutes of Health, Bethesda, Md. He is conducting studies on muscle, the problem being the understanding of the contractile matter itself and then understanding the muscle cell as a whole. Dr. Szent-Györgyi, who was born in Budapest in 1893, received his medical degree from the University of Budapest and a Ph.D. from Cambridge University, England. While serving as professor of medical chemistry at the University of Szeged in Hungary, he made discoveries resulting in the isolation and identification of vitamin C and did fundamental work on biologic oxidation. He came to the United States in February 1948, after being awarded the special research fellowship.

## STUDY OF THE DONORA DISASTER

A comprehensive study of air pollution began January 10 at Donora, Pa., scene of a smog disaster where 20 persons recently died, the Surgeon General announced. Before a full scale study could be started, it was necessary to send a task force into the area to make preliminary observations and decide on a course of action. The task force study has been completed. The larger study will take in the entire Donora-Webster area in the Monongahela Valley. The study group will include 2 or more physicians, 4 nurses, a dentist, a medical technician, 6 engineers and 2 statisticians, all specialists in industrial hygiene.

The investigation is being made at the request of, and in cooperation with, the Pennsylvania State Department of Health, the Borough Council of Donora and the United Steelworkers, C. I. O. Public Health nurses will make a house to house canvass of Donora and nearby areas to obtain information from persons affected by the smog, and this will be followed by detailed medical and dental examinations. Air samplings taken throughout the area with equipment for detection of metallic and gaseous contaminants will be sent to Washington for further analysis in Public Health service laboratories. The group will conduct statistical studies of sickness and mortality records of the community to determine health trends and relative importance of specific causes of death. These data will be correlated with the clinical and environmental findings. The personnel will survey sanitation, housing and other related conditions which may have a bearing on health. Meteorologic observations will be made in cooperation with the United States Weather Bureau, and aerial photographs of the Monongahela Valley will be taken by the Coast Guard.

Dr. James G. Townsend, Chief of the Division of Industrial Hygiene, who organized the study, said that several months' work would be necessary to reach definite conclusions.

### MEETING ON FUNGUS ANTIGEN TESTS

The Division of Tuberculosis of the Public Health Service invites all physicians and other investigators interested in conducting skin test programs to attend a conference February 2-3 in Room 3523, Federal Security Building, Washington 25, D. C., on procedures for conducting fungus antigen tests to complement tuberculin tests. The meeting will seek to arrive at an understanding of definitions, interpretations and methods of recording results of the fungus antigen tests. The agenda include the following: selection of tuberculin and fungus antigens in appropriate doses, interpreting and recording reactions, interpreting roentgenograms and recording findings, designation of "residence" and permanent record forms.

### FEDERAL AID FOR CANCER INSTRUCTION

National Cancer Institute grants of $810,956 for cancer control projects and for cancer teaching in medical and dental schools were announced December 22 by the Federal Security Administrator. The grants which were approved by the Surgeon General of the U. S. Public Health Service had been recommended by the National Advisory Cancer Council, a group of cancer experts not connected with the government, who met in San Francisco to review the applications for grants. Eleven grants for cancer control, totaling $202,417, went to nonfederal institutions and agencies to support studies of cancer diagnostic tests, occupational cancer, tumor pathology, cancer teaching methods and other special control projects. Grants to continue cancer teaching of undergraduates went to twenty-three medical schools and nine dental schools and totaled $608,538.

### PILOT CANCER DETECTION CENTER

The pilot cancer detection center at Hot Springs, Ark., which is operated in conjunction with the Public Health Service Rapid Treatment Center for Venereal Disease, completed its first year of operation Nov. 13, 1948. During the first eight months of work of the center, 2 per cent of the 19,897 women patients with venereal disease who were examined had cancer, a rate uncovered slightly higher than average. The director of the cancer detection center at Hot Springs is Dr. Walter E. Doyle, who has been part time cancer control consultant for the Public Health Service. Dr. Doyle will also supervise the Arkansas project on cancer diagnostic tests.

## MISCELLANEOUS

### OAK RIDGE INSTITUTE OF NUCLEAR STUDIES

Scientists from many of the laboratories operated by the government began the new year in Oak Ridge, Tenn., learning how to use radioisotopes in research. They and other research workers, including two from foreign countries, make a class of thirty-two members who are taking the one month course in technics, the fifth of the series of cources offered by the Oak Ridge Institute of Nuclear Studies to train scientists in this new and important research tool. The institute, which is comprised of nineteen Southern universities, conducts a broad program of research through a contract with the Atomic Energy Commission. Priority for attendance at this particular course was given to representatives of government laboratories, as they are engaged in research work of great potential value to the country through a clear understanding of the cause and treatment of diseases, better crops, better use of natural resources and strengthening of the armed forces. Oak Ridge is the center of radioisotope production and training in the United States from which more than 4,600 shipments of radioisotopes have been made since August 1946, and where scientists from more than one hundred research organizations throughout the country have attended training courses offered by the Institute of Nuclear Studies.

### PHARMACOLOGISTS WANTED

The U. S. Civil Service Commission is accepting applications for pharmacologist positions which pay salaries ranging from $3,727 to $10,305 a year. The majority of the positions to be filled are in the Food and Drug Administration and the National Institutes of Health in Washington, D. C., and vicinity. To qualify, applicants must have had appropriate college study or a combination of such study and experience. In addition, they must have had from one to three years of professional experience in the fields of biochemistry, animal physiology, pharmacology or toxicology. Appropriate graduate study may be substituted for professional experience up to a maximum of two years of experience. No written test is required. Applications will be accepted in the U. S. Civil Service Commission, Washington 25, D. C., until further notice. Application forms may be secured at most first and second class post offices, from Civil Service regional offices or direct from the Commission's Washington office.

## PHYSICIANS SEPARATED FROM SERVICE

### ARMY MEDICAL CORPS OFFICERS RECOMMENDED FOR/OR RELIEVED FROM ACTIVE DUTY

#### Alabama

| | |
|---|---|
| Cobb, Benajah B. | Tuskegee |
| Schoel, Robert E. | Birmingham |
| Williams, Thomas H. | Newton |

#### Arkansas

| | |
|---|---|
| Baker, James R. | Searcy County |
| Bell, William K. | Benton |
| Branson, Cecil R. | Blytheville |
| Davis, Malcolm W. | El Dorado |
| Fergeson, James O. | Danville |
| Hutton, Samerill B. Jr. | Fort Smith |
| Newton, John C. | Smackover |
| Rhinehart, William J. | Little Rock |
| Sloan, Clay A. | Jonesboro |
| Tommey, Charles E. | Murfreesboro |
| Webb, Lewis A. | Hector |

#### Arizona

| | |
|---|---|
| Congdon, Charles C. | Tucson |
| Fee, Wesley S. | Tucson |

#### California

| | |
|---|---|
| Bennett, James H. | San Francisco |
| Borgnino, Frank C. | Chico |
| Brown, Robert | Los Angeles |
| Curtis, George W. | Long Beach |
| Eng, Samuel Y. | Los Angeles |
| Fox, Jean DeW. | Glendale |
| Hair, Charles M. | Los Angeles |
| Jones, John O. | Los Angeles |
| Leary, Clarence M. Jr. | Vallejo |
| Lee, Leslie Y. | San Jose |
| Nelson, Roger T. | Los Angeles |
| Owen, Lincoln L. | Los Angeles |
| Pihl, Kai H. | Los Angeles |
| Polk, Seigul J. | San Francisco |
| Powsner, Leonard G. | Venice |
| Reilly, Emmett B. | Alhambra |
| Roberson, Beverly B. | San Marino |
| Robinson, Marsh E. | Santa Monica |
| Rohn, James G. | Visalia |
| Shelton, William R. | Los Angeles |
| White, Sidney G. | Los Angeles |

#### Colorado

| | |
|---|---|
| Bograd, Nathan | Denver |
| Watkins, Frederick W. | Denver |

#### Connecticut

| | |
|---|---|
| Ballien, Theodore A. | West Hartford |
| Brown, Richard J. | Milford |
| Callahan, James L. | New Britain |
| Cavaliere, Vincent J. | Bridgeport |
| DuVivier, Edward K. | New Haven |
| Gagliardi, Raymond A. | New Haven |
| Johnson, Carl W. | Bolton |
| Kristan, Joseph J. | Wallingford |
| McDonnell, Robert R. | New Haven |
| Miller, Spencer K. | Stratford |

#### District of Columbia

| | |
|---|---|
| Cox, Philip A. | Washington |
| Feek, Joseph D. | Washington |
| Harrison, Lloyd B. Jr. | Washington |

# PHYSICIANS SEPARATED FROM SERVICE

### Florida

| | |
|---|---|
| Campbell, Roy E. | Lake City |
| Wolkowsky, Melvin | Miami Beach |

### Georgia

| | |
|---|---|
| Avery, William G. | Lagrange |
| Barnes, Thomas G. II | Macon |
| Brice, Mitchell | Quitman |
| Buckwald, Albert I. | Stone Mountain |
| Clayton, Malcolm D. Jr. | Augusta |
| Culver, James F. | Macon |
| Easley, Curran S. Jr. | Atlanta |
| Graham, Frank B. III | Decatur |
| Holmes, Edgar C. | Atlanta |
| Smith, Martin H. | Gainsville |

### Idaho

| | |
|---|---|
| Frost, Maurice J. | Cocur D'Alene |
| Paddison, Richard M. | Deerlodge |

### Illinois

| | |
|---|---|
| Anderson, Richard L. | Chicago |
| Baker, Lester | Chicago |
| Bailey, John J. | Ottawa |
| Barickman, Robert I. Jr. | Streator |
| Bederman, Stuart S. | Chicago |
| Brown, James G. | Cypress |
| Bruggers, Laurence | St. Anne |
| Butz, Valentine P. | Chicago |
| Faulkner, James W. | Joliet |
| Goldberg, Arthur M. | Chicago |
| Greco, Louis R. Jr. | Maywood |
| Hand, William J. | Chicago |
| Heifetz, Milton D. | Chicago |
| Kirchhoff, Clyde A. | Franklin Park |
| Knudson, Richard A. | Evanston |
| Korol, Herbert | Chicago |
| Kush, Arthur W. | Chicago |
| Miller, Edward J. | Chicago |
| Nolan, Kenneth S. | Wheaton |
| Oyer, Russell L. | Chicago |
| Pollock, George H. | Chicago |
| Reed, Quentin H. | Murphysboro |
| Russell, John R. | Chicago |
| Sweazy, Donald L. | Cowden |
| Zalar, Richard W. | Joliet |

### Indiana

| | |
|---|---|
| Banker, Harry W. | Portland |
| Clevinger, William G. | Speedway City |
| Coleman, Joseph E. | Indianapolis |
| Collingnon, Urban J. | Richmond |
| Cook, Norman R. | Indianapolis |
| Johnson, William G. | Fairmont |
| Land, James F. | Kokomo |
| Laupus, William E. | Seymour |
| Littell, Joseph J. | Indianapolis |
| Miller, William J. | Fort Wayne |
| Nichols, Robert J. | Knox |
| Plank, Charles R. | Logansport |
| Robertson, Raymond E. | Indianapolis |
| Robertson, William C. | Fort Wayne |
| Schroeder, Henry R. Jr. | Washington |
| Smith, Rogers J. | Indianapolis |
| Strattgos, Joseph S. | So. Bend |

### Iowa

| | |
|---|---|
| Bradshaw, John W. | Iowa City |
| Feldick, Harley G. | Buffalo Center |
| Goodman, Jack L. | Albia |
| Huey, John R. | Rowan |
| Hungerford, Louis N. Jr. | Marengo |
| Vaubel, Rex O. | Dysart |

### Kansas

| | |
|---|---|
| Coutant, William R. | Iola |
| Cutcliff, Daniel J. | Harington |

### Kentucky

| | |
|---|---|
| Baker, John E. | Hopkinsville |
| Deiss, William P. | Shelbyville |
| Eckman, William G. Jr. | S. Ft. Mitchell |
| Hagan, William H. | Louisville |
| Radding, Robert S. | St. Matthews |
| Somerville, John W. | Frankfort |

### Maine

| | |
|---|---|
| Spear, Ivan M. | Yarmouth |

### Maryland

| | |
|---|---|
| Brendle, William K. | Baltimore |
| Everett, John T. | Baltimore |
| Macht, Martin B. | Baltimore |
| Nichols, Firmadge K. | Baltimore |

### Massachusetts

| | |
|---|---|
| Abbott, Leigh G. | Weston |
| Broughton, David S. | Boston |
| Carroll, George J. | Ashburnham |
| Dealy, James B. Jr. | West Newton |
| Dunbar, Ernest A. Jr. | Barre |
| Gryboski, Joseph S. | Dorchester |
| Herbert, Rene V. | Holyoke |
| Herrick, Stanley E. Jr. | Auburndale |
| Hinckley, Harry F. Jr. | Roxbury |
| Kaknes, George B. | Lowell |
| Kilroy, Edward F. | Brookline |
| McLaughlin, John C. | Brookline |
| Moench, John C. | West Newton |
| Nunes, Howard | Harwich |
| Stiff, Donald W. S. | W. Medford |
| Wolf, Henry R. | Mattapan |

### Michigan

| | |
|---|---|
| Altshuler, Samuel S. | Grosse Pointe Pk. |
| Berlin, Byron S. | Detroit |
| Billingslea, Thomas H. | East Detroit |
| Bloomer, William E. | Dearborn |
| Chandler, Robert | Detroit |
| Chandler, Edward M. | Charlotte |
| Dean, Carleton R. | E. Lansing |
| Dickinson, David G. | Adrian |
| Donaldson, David D. | Dearborn |
| Drake, Gerald A. | E. Lansing |
| Duwe, Frank A. | Hazel Park |
| Firestone, Robert I. | Dowagiac |
| Hebel, Lawrence G. | Royal Oak |
| Howick, John R. | Grand Rapids |
| Kabza, Theodore G. | Grand Rapids |
| Kanar, Edmund A. | Hamtramck |
| Peterson, Robert C. | Ludington |
| Read, James A. | Detroit |
| Ryan, James M. | Detroit |
| Sleight, Justin L. | Laingsburg |
| Veenschoten, G. | Detroit |
| Watts, Joseph C. | Detroit |

### Minnesota

| | |
|---|---|
| Benson, Lyle M. | Canby |
| Fuller, Benjamin F. | St. Paul |
| Juergens, Manley F. | North Branch |
| Kelley, Vincent C. | Minneapolis |
| Krystosek, Lee A. | Holdingford |
| Lyons, John Cecil | Minneapolis |
| Moersch, Robert U. | Rochester |
| Schmidt, Richard H. | St. Paul |
| Schneckloth, Roland E. | Minneapolis |
| Sprafka, Joseph L. | St. Paul |
| Wright, Thomas D. | Minneapolis |

### Mississippi

| | |
|---|---|
| Burns, Dixon N. | Ecru |
| Crawford, Oral B. Jr. | Columbia |

### Missouri

| | |
|---|---|
| Burst, Donald O. | St. Louis |
| Bussmann, Donald W. | St. Louis |
| Carter, William W. | Clayton |
| Costa, Dominic V. | St. Louis |
| Cramblet, Denny H. | Richmond Heights |
| Drowns, Bruce V. | St. Joseph |
| Hewitt, Archie L. | Maplewood |
| Jacobs, Charles C. Jr. | St. Louis |
| Norman, Haskell F. | St. Louis |
| Thomas, Merle D. | Memphis |

### Montana

| | |
|---|---|
| Coutu, Milton H. | Helena |
| Zuelke, Paul E. | Alberton |

### Nebraska

| | |
|---|---|
| Anderson, Harlan B. | Fullerton |
| Dickson, Donald G. | Lincoln |
| Flothow, Max W, Jr. | Omaha |
| McGrath, James R. | Grand Island |
| Tanner, John W. | Omaha |
| Wolfson, Justin J. | Omaha |

### New Hampshire

| | |
|---|---|
| Ames, Adelbert III | Hanover |
| Brock, Warren H. | Manchester |

### New Jersey

| | |
|---|---|
| Budnicki, Xavier B. | Perth Amboy |
| Gandek, Charles | New Brunswick |
| Jehl, Wilbur F. | Clifton |
| Johnson, Melvyn | Irvington |

### New Mexico

| | |
|---|---|
| Bailey, Herbert A. | Santa Fe |

### New York

| | |
|---|---|
| Arony, Alexander J. | Great Neck |
| Barnett, Howard R. | Lockport |
| Barry, Raymond S. | Niagara Falls |
| Benitez, Roberto E. | Brooklyn |
| Berkowitz, Joseph J. | New York |
| Boardman, Willard H. | Dundee |
| Bradner, Morris R. Jr. | Warwick |
| Brunse, Anthony J. | Ozone Park |
| Brzustowicz, Richard J. | Brooklyn |
| Carney, Paul L. | Staten Island |
| Carter, William B. | New York |
| Catalano, Thomas C. | Brooklyn |
| Cheney, Joseph C. | Brooklyn |
| Chu, Foo | New York |
| Clark, Carl W. Jr. | Courtland |
| Colbert, James W. Jr. | Larchmont |
| Croft, John T. | Brooklyn |
| Davidson, Donald R. II | Hancock |
| Doust, William C. | Marcellus |
| Drago, Rosario P. | New York |
| Fairbairn, John F. II | Buffalo |
| Fant, David J. III | Brooklands |
| Feigenheimer, Erwin | Brooklyn |
| Foley, Francis E. | Rosendale |
| Goldfarb, Norman | Brooklyn |
| Jacobson, Hilton R. | Falconer |
| Jacobus, Theodore I. Jr. | New York |
| Katz, Selig H. | New York |
| King, David G. | Brooklyn |
| Kirschenfeld, Seymour | New York |
| Lindner, Isaac N. | Brooklyn |
| Lipphard, Dickinson | Yonkers |
| Manganelli, John A. | Utica |
| Moore, Roy S. Jr. | Syracuse |
| Murdock, Alfred W. Jr. | Brooklyn |
| Nilsson, John M. | New York |
| Philipp, Roy J. | Rochester |
| Raffa, Joseph L. | New York |
| Sakin, Genia I. | New York |
| Schonbrun, Alan B. | Brooklyn |
| Schroeder, Conrad T. H. | Delhi |
| Shaheen, David J. | Sherburne |
| Sisson, George A. | Syracuse |
| Voorhess, William D. Jr. | Queens Village |

### North Carolina

| | |
|---|---|
| Avera, John W. Jr. | Winston-Salem |
| Broome, Robert A. Jr. | Rocky Mount |
| Caldwell, Eston R. | Waynesville |
| Jennings, Royal G. Jr. | Thomasville |
| Spencer, Frederick B. Jr. | Salisbury |

### North Dakota

| | |
|---|---|
| Boyum, Lowell E. | Harvey |
| Craychee, Walter A. | Madan |

# PHYSICIANS SEPARATED FROM SERVICE

### North Dakota—Continued

| | |
|---|---|
| Kaess, Kenneth R | Fargo |
| Klakeg, Clayton H | Fargo |

### Ohio

| | |
|---|---|
| Alter, Marvin S | Cincinnati |
| Beam, William C | No. Canton |
| Bleakney, Rex M | Columbus |
| Boldizar, Albert G | Fairview Village |
| Boles, Ewing T. II | Columbus |
| Bonte, Frederick J | Canton |
| Bosch, Ralph O | Cincinnati |
| Bowman, James A. Jr | Cleveland |
| Brant, Earl E | Youngstown |
| Burkhart, William E | Columbus |
| Cain, George F | E. Liverpool |
| Canelli, Francis R | Maumee |
| Christie, James H | Cleveland |
| Craig, James W | West Liberty |
| Davis, Hamilton S | Shaker Heights |
| DeJute, James A | Niles |
| Dix, John H | Wooster |
| Drake, Henry P. Jr | Marion |
| Dundon, Arthur F. Sr | Alliance |
| Ellis, George M. Jr | Toledo |
| Eyler, Don L | Columbus |
| Finegan, Theodore E | North Ridgeville |
| Frankel, Alan L | Cleveland Heights |
| Geist, Robert M. Jr | Columbus |
| Gilfoy, Francis E | Brecksville |
| Glazer, Norman M | Cleveland |
| Glendenning, Paul | Cleveland Heights |
| Glenn, Jack M | Cincinnati |
| Golder, Sylvan A | Cincinnati |
| Goulding, Robert L | Cleveland |
| Greever, Donald L | Woodville |
| Greicius, Frank A | Cleveland |
| Gross, William V. Jr | Cleveland Heights |
| Haas, Theron H | Toledo |
| Hanahan, Paul W | Struthers |
| Hoprich, Harold F | Columbus |
| Horrigan, Daniel L | Dayton |
| Hranilovich, George T | Akron |
| Hugenberg, William C | Norwood |
| Hunt, William E | Columbus |
| Hutchison, John W | Columbus |
| Inkley, Scott R | Cleveland |
| Keller, Robert A | Cleveland |
| Kiener, Joseph D | New Lexington |
| Kligerman, Morton M | Cincinnati |
| Klippel, Charles H. Jr | Toledo |
| Kraus, William G | Akron |
| LaManna, John R | Youngstown |
| Leighninger, David S | Cleveland |
| Levy, Matthew N | Cleveland |
| Luchette, Albert A | Masury |
| McCord, Malcolm C | Glendale |
| McLaughlin, John J | Cleveland |
| Mackay, Milton J | Cleveland |
| Miller, William F | Springfield |
| Nielsen, David W | Lorain |
| Reineck, Robert M | Norwalk |
| Reinert, Raymond E | Bexley |
| Renner, Wilbur W. O | Columbus |
| Schoenrock, Kenneth F | Toledo |
| Scholz, Donald A | Medina |
| Schurgast, Anselm W | Cincinnati |
| Schribner, Robert B | Conneaut |
| Steinberg, Raymond M | Toledo |
| Stevenson, William F | Brookfield |
| Stewart, John A | Hamilton |
| Stockdale, Wayne H | Duncan Falls |
| Stires, William J | Canton |
| Stone, Richard L | Cincinnati |
| Toomey, Charles H | Lakewood |
| Verbryke, James E | Westchester |
| Wherry, John W | Elyria |

### Oklahoma

| | |
|---|---|
| Brown, Spencer H | Fort Gibson |
| Casey, Robert E | Oklahoma City |
| Imler, Robert L. Jr | Tulsa |

### Oklahoma—Continued

| | |
|---|---|
| Hindman, William M | Tulsa |
| Rahhal, George M | Wetumka |
| Tatlow, Byron W. Jr | Oklahoma City |

### Oregon

| | |
|---|---|
| Barrick, Claude W. Jr | Tillamook |
| Endicott, William R. Jr | Portland |
| Karstens, Andres I | Helix |
| Thompson, William W | Portland |

### Pennsylvania

| | |
|---|---|
| Anderko, Frank T | Reading |
| Benson, Walter R | Tamaqua |
| Berley, Benjamin S | Kingston |
| Biggane, Charles F. Jr | Philadelphia |
| Bishop, Charles J | Hop Bottom |
| Brignola, Michael P | Philadelphia |
| Brown, Charles H | Franklin |
| Brown, Harold E | Danville |
| Burkett, Donald E | Lloydell |
| Busis, Sidney N | Pittsburgh |
| Camarata, Samuel J | Pittsburgh |
| Campana, Joseph F | Williamsport |
| Carrigan, Paul T | Philadelphia |
| Casey, Paul R | Childs |
| Cattie, Vincent J | Philadelphia |
| Cohen, Bennett P | Pittsburgh |
| Conrad, Joe E | Valley View |
| Cubler, Edward W | Philadelphia |
| DeCruz, Julio M | Philadelphia |
| Dobosh, George A | Bethlehem |
| Dunlap, Robert W | Washington |
| Finestone, Albert J | Philadelphia |
| Frank, Ludwig M | Philadelphia |
| Frank, William H | Johnstown |
| Fulton, John F | Pittsburgh |
| Gallagher, Robert J | Yeadon |
| Garver, Kenneth Leon | Pittsburgh |
| Graham, Thomas F | Yeadon |
| Grebe, Jack A | Philipsburg |
| Heyl, Frank E. Jr | West View |
| Horn, Harold R. Jr | Jenkintown |
| Iannucci, Christopher A | Philadelphia |
| Jarrett, John C | Ellwood City |
| Kline, George L. Jr | Greensburg |
| Larson, John W | Warren |
| Mandarino, Michael P | Philadelphia |
| Mann, Arthur F | Bethlehem |
| McCandless, James B | Pittsburgh |
| McKinley, Arthur R | Brookville |
| Massey, Franklin C | Philadelphia |
| Mebane, Tom S | Wilkes-Barre |
| Morgan, Winfield S. III | Plymouth |
| Murphy, John J | Scranton |
| O'Connor, Margaret C | Jessup |
| O'Doherty, Desmond S | Philadelphia |
| Olley, James F | Sunbury |
| Peterson, Clifford C | Philadelphia |
| Pfeifer, Robert T | Philadelphia |
| Pickering, Harold C | Philadelphia |
| Riley, Francis A | Pittsburgh |
| Sayers, Kenneth H | Petrolia |
| Siegel, Seymour | Philadelphia |
| Smith, Kenneth A | Nanticoke |
| Stewart, Harold W | Huntingdon |
| Thompson, Harry J | Kittanning |
| Zaydon, Thomas J | Peckville |

### South Carolina

| | |
|---|---|
| Anderson, James L. Jr | Greenville |
| Barr, Lawson H | Leesville |
| Brownlee, Robert C. Jr | Due West |
| Langford, Herbert G | Columbia |
| Miller, Eustace P. Jr | Columbia |
| Nicholson, George B | Edgefield |
| Pollitzer, Richard S | Greenville |
| Sosnowski, John R | Johns Island |

### South Dakota

| | |
|---|---|
| Allen, Robert W | Keystone |
| Hohf, Robert P | Yankton |

### Tennessee

| | |
|---|---|
| Anderson, Edwin B | Chattanooga |
| Arthur, John E | Knoxville |
| Cara, Dominic J. Jr | Memphis |
| DeLozier, Alton O. Jr | Sevierville |
| Demos, Robert G | Chattanooga |
| Ervin, Paul A. Jr | Crossville |
| Idol, Enoch C | Memphis |
| Taylor, Viston Jr | Nashville |

### Texas

| | |
|---|---|
| Bridges, William H | Houston |
| Bryant, David W | Dallas |
| Conradt, Louis W | Terrell |
| Davis, Milton V | Dallas |
| Dickens, William R | Greenville |
| Dryden, Charles B. Jr | Stephenville |
| Fischer, Newton D | San Antonio |
| Gottlieb, Manfred F | La Ferio |
| Hejtmancik, James H | Giddings |
| Johnson, Edwin J | Dallas |
| Swafford, Jack W | Sherman |

### Utah

| | |
|---|---|
| Harline, Wesley G | Salt Lake City |
| Luce, Cyril M. Jr | Salt Lake City |

### Vermont

| | |
|---|---|
| Cain, Robert N | Burlington |
| Karren, Victor L | Burlington |
| Pease, Clifford A. Jr | Burlington |

### Virginia

| | |
|---|---|
| Boyd, Robert S | Winchester |
| Gallagher, Martin E. Jr | Norfolk |
| Herrell, Jesse L. Jr | Manassas |
| McManus, James W. Jr | Covington |
| Nelson, William R | Charlottesville |

### Washington

| | |
|---|---|
| Davis, Stanley K | Port Orchard |
| Lamberton, Harold W | College Pl. |
| Mikkelsen, William P | Renton |
| Peterson, Richard E | Seattle |
| Rice, Homer E | Wenatchee |
| Schaeffer, Robert H | Seattle |

### West Virginia

| | |
|---|---|
| Chandler, Clinton B | Iaegar |
| Gotes, Paul S | Fairmont |

### Wisconsin

| | |
|---|---|
| Bennett, John C | Burlington |
| Fleming, Neal E | Wausau |
| Halberg, Avery C | La Crosse |
| Jensen, James S | Sheboygan |
| Leahy, James J | Park Falls |
| McNeel, Laird | Madison |
| Malloy, Thomas G | Milwaukee |
| Nause, Frederick P | Sheboygan |
| Quandt, Valerius V | Watertown |
| Settlage, Calvin F | Waukesha |
| Williams, George E | Lancaster |
| Witte, Keith B | Madison |

### Puerto Rico

| | |
|---|---|
| Snyder, Lawrence J | Santurce |

### Canal Zone

| | |
|---|---|
| Conason, Arnold | Ancon |

### Hawaii

| | |
|---|---|
| Char, Walter F. S | Honolulu |

### England

| | |
|---|---|
| McCallister, Philip C | Torquay |

# Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

## CALIFORNIA

**Los Angeles Research Foundation.**—The Los Angeles County Medical Association Research Foundation was established January 19 as a nonprofit, charitable corporation organized "to foster studies on the cause, cure and prevention of disease, to gather and to administer funds for these purposes, to disseminate information and report to the public on problems of and progress in the conquest of disease." Its membership includes practically every person in the locality who is engaged in laboratory research in medical and allied fields. The professional members elect the board of directors, 80 per cent of whom must be members of the county medical association. Gifts of money have been offered to the association from time to time in the past to be used for medical research, but heretofore these could not be accepted since no mechanism existed by which they could be administered.

**Professional Conduct Committee.**—During the year 1948 the Professional Conduct Committee of the San Francisco County Medical Society considered 67 cases involving fee disputes (29), malpractice suits (16), questions on advertising (6), matters of unethical conduct (12), complaints against hospitals (2), complaints against undertaking firms (1) and one special investigation. In consideration of a membership of over 1,400, the committee feels that 67 such cases in a year was a small number. Most of the complaints received could have been avoided, the report said, by (1) amiable and frank relations with the patient, plus a willingness to sit down and discuss the issue at hand, and (2) knowledge of the Principles of Professional Conduct as set forth in the Constitution and By-Laws of the San Francisco County Medical Society, copies of which are available to all members of the society, on request.

## CONNECTICUT

**Yale Clinic to Assist Industry.**—The Yale Plan Clinic began early in January a new consultant service to assist industry evaluate losses resulting from alcoholism. It will assist in determining the extent of alcoholism within the company and will advise on existing problems of discipline, termination of employment, insurance and pension payments, labor-management relations and health services. The clinic will also recommend alternative possibilities for treatment of alcoholic addicts who show good indications of rehabilitation and will provide educational information. As evidence of the seriousness of the problem to industry, clinic officials pointed out that more than 50 per cent of the first 1,000 patients coming to the clinic were employed in industry. All branches of the Yale Plan Clinic, together with the National Committee for Education on Alcoholism, will participate in the new consultant service. Dr. George Lolli, medical director, and Raymond McCarthy, executive director of the Yale Plan Clinic, will be in charge of consultation, training and the rehabilitation services.

## DISTRICT OF COLUMBIA

**Director of Group Hospitalization Retires.**—Mr. E. J. Henryson retired in December as the first director of Group Hospitalization, Inc., a voluntary prepayment plan which serves the Washington area. He had held this position since 1934. One of his last major contributions to the voluntary prepayment movement was the counsel and assistance he provided when members of the medical profession established Medical Service of the District of Columbia as a medium through which they could offer the public their plan for voluntary prepayment of surgical care. The physicians' plan, which was first offered last April, is administered by Group Hospitalization, Inc.

## ILLINOIS

**Roentgen Survey in Evanston.**—More than 24,000 persons were given roentgen examinations in a recently completed survey in Evanston, conducted jointly by the city's health department, the Tuberculosis Institute of Chicago and Cook County and the Illinois State Department of Public Health. Three hundred and fifty-three cases of tuberculosis or suspect cases were found. Of those given roentgen examinations in the thirty-nine day program, 14,935 were women, among whom were found 394 cases of chest disorders other than tuberculosis and 759 cases indicating heart disease. About 29 per cent of persons given roentgen examinations were nonresidents and 96.6 per cent of persons who took part in the project were adults.

### Chicago

**Hektoen Institute.**—At the annual meeting of the Hektoen Institute for Medical Research of Cook County Hospital, the following persons were appointed as research associates on the staff: Drs. Ernst Loeffler, Bruno W. Volk, Fenton Schaffner, Joseph Silverstein and Jerome M. Swarts, all of Chicago.

**Personals.**—Dr. Arno B. Luckhardt, William Beaumont distinguished service professor of physiology at the University of Chicago, was elected 1947 Man of the Year by Phi Beta Pi, professional medical fraternity. The fraternity many years ago established the Arno B. Luckhardt lecture.——Dr. Hugh McCulloch, St. Louis, has been appointed medical director of the Council on Rheumatic Fever of the Chicago Heart Association and medical director of LaRabida Jackson Park Sanitarium.

**Research Fellowships Awarded.**—The University of Illinois Graduate College is offering ten one-year research fellowships in medicine, dentistry and pharmacy. Each carries a stipend of $1,800 a year for medical and dental graduates and $1,200 for pharmacy graduates with exemptions from tuition fees for all appointees. Registration in the graduate college for credit toward M.S. or Ph.D. degrees is required. Fellows are eligible for reappointment in competition with the new applicants. Candidates should indicate the field of research in which they are interested and submit transcripts of their scholastic credits, together with the names of three former science teachers as references. Appointments will be announced about March 1. The fellowship year begins on July 1 or September 1. Application blanks may be secured from the Secretary of the Graduate Committee, 1853 W. Polk Street, Chicago 12.

**Special Society Meetings.**—The Chicago Urological Society meeting January 27 at 8 p. m. in the Congress Hotel has invited the following speakers:

Marie Lehner, Chicago, Massive Unilateral Congenital Cystic Kidney: Case Report.
Geoffrey A. Fricker, Chicago, Hypernephroma with Solitary Metastases: Case Report.
Irwin T. Rieger, Chicago, Unusual Hematuria: Case Report.
Harold L. Briskin, Hines, Clinical Notes on Perirenal Air Injections.
Frederick J. Wahl, Chicago, Clear Cell Renal Carcinoma of Twenty-One Years' Duration: Implication of Endocrine Relationship to Growth.

——At the meeting of the Chicago Society of Internal Medicine January 24 at the Drake Hotel at 8 p. m. Drs. Paul S. Rhoads, Floyd A. Svec and Joseph H. Rohr, all of Chicago, have been invited to speak on "Laboratory and Clinical Observations on the Use of the New Sulfonamide Gantrosan," and Dr. Jerome R. Head, Chicago, on "Streptomycin in the Treatment of Pulmonary Tuberculosis." Dinner will be served in advance of both meetings.

## INDIANA

**Medicine in the 81st Congress.**—Dr. Joseph S. Lawrence, director of the Washington office of the American Medical Association, will address the Conference of County Medical Society Officers in the Claypool Hotel, Indianapolis, January 30, 12:30 p. m. on "What Medicine May Expect from the 81st Congress."

**Appoint Director of Child Guidance Clinic.**—Dr. John H. Waterman, associate professor of psychiatry at Indiana University School of Medicine, Bloomington-Indianapolis, is the director of the Child Guidance Clinic being established at the University Medical Center under the sponsorship of the Indianapolis Junior League. It was to begin operation November 1, and will be available to the entire state on the same basis of administration as are other clinics devoted to child patients at the Medical Center. Dr. Waterman, a graduate of the University of Nebraska College of Medicine, Omaha, 1933, has been with the Houston (Tex.) Child Guidance Clinic on the faculty of the University of Texas and Baylor University, Houston. The League will contribute $15,000 annually to the support of the clinic.

## KANSAS

**Summary Course in Radiology.**—A postgraduate course in radiology has been arranged for February 7-9 by the University of Kansas faculty in cooperation with the Kansas Medical Society and the Kansas State Board of Health as part of its program of postgraduate study. The course attempts to present a brief summary in the field of radiology in diagnosis and treatment. It is open to all doctors of medicine and surgery in Kansas and adjacent states. Among the instructors are Drs. James F. Brailsford, Birmingham, England; John P. Caffey, New York; Edwin C. Ernst, Columbia, Mo.; David S. Dann, Kenneth C.

Holweg, William M. Kitchen, Ira H. Lockwood, Louis A. Scarpellino, Arthur B. Smith and John W. Walker, all of Kansas City, Mo. A fee of $20 will be charged to all except interns and residents on identification by their hospital superintendents. Communications should be addressed to Extension Program in Medicine, University of Kansas Medical Center, Kansas City 3.

**Mid-Winter Clinical Conference.**—The Sedgwick County Medical Society and the Veterans Administration Hospital of Wichita are holding a Mid-Winter Clinical Conference February 18-19. Among the speakers will be Drs. Oscar T. Clagett, Mayo Clinic, Rochester, Minn., and Paul S. Rhoads, professor of surgery, Northwestern University Medical School, Chicago. Local clinics will be held each day [illegible] matology, obstetrics and gynecology, [illegible] and radiology. Drs. Mahlon H. Delp, F[illegible] C. Bartlett, Wichita, will hold clinics in medicine and surgery respectively on Friday. There will also be a symposium on "Duodenal Ulcer" by Drs. Thomas J. Rankin, Philip Cooper and James B. Fisher, all of Wichita. On Saturday a clinical pathologic conference by the local men will be held.

## LOUISIANA

**State Surgical Association.**—On November 11 the Surgical Association of Louisiana was formed to foster surgical knowledge, to aid surgical advances and to promote ethical standards among members. Dr. Urban Maes, New Orleans, presented a paper on "A Plea for Better Clinical Diagnosis in the Field of Medicine." Officers elected were Drs. C. Grenes Cole, New Orleans, president, and Henry G. Butker, New Orleans, secretary.

**Psychiatrist to Give the Matas Lecture.**—The annual Rudolph Matas Lecture will be given January 27 at 8 p. m. in the Hutchinson Auditorium, Tulane University of Louisiana School of Medicine, New Orleans, by Dr. William C. Menninger, clinical director of the Menninger Foundation in Topeka, Kan. His subject will be "Everyday Need for Psychiatry." All members of the medical profession are invited. The Matas Lecture was named in honor of Dr. Rudolph Matas, professor emeritus of surgery at Tulane and renowned vascular surgeon. It is sponsored by the Beta Iota Chapter of Nu Sigma Nu.

## MINNESOTA

**Minnesota Health Days.**—The Minnesota State Medical Association and the state department of health have conducted health days in every section of the state during 1948. Beginning last February people in all counties assembled to discuss health needs of their communities. Governor Youngdahl has addressed the evening meetings; morning group discussions studied health problems of local concern; health motion pictures were shown and local or county health councils have been organized.

**War Memorial Blood Bank.**—The Minneapolis War Memorial Blood Bank began to serve the community as a central blood bank on December 1. It will replace the small blood banks that have operated independently of one another at most of the Minneapolis hospitals since 1940. The Hennepin County Medical Society has been attempting to work out a plan since 1942. Part of the personnel of the bank will be full time employees; at least six of the medical technologists will be rotated from the various hospital laboratories in four to six week periods.

## NEW YORK

**University Appointments.**—Dr. Merel H. Harmel, Philadelphia, has been appointed associate professor of anesthesiology at Albany Medical College and attending anesthetist at Albany Hospital. He is a graduate of Johns Hopkins Medical School, Baltimore, 1943. Dr. Charles M. Landmesser, a graduate of Cornell University School of Medicine, New York, 1942, has been appointed instructor in anesthesiology and assistant attending anesthetist at the hospital.

**Postgraduate Lectures.**—Postgraduate lectures have been arranged by the Medical Society of the State of New York and the New York State Department of Health as follows: The Medical Board of James T. Mather Memorial Hospital will hear Dr. Charles A. R. Connor, New York, speak on "Rheumatic Fever" at the hospital in Port Jefferson, February 24, 11:30 a. m. The Suffolk County Medical Society meeting at the Patchogue Hotel, Patchogue, Long Island, January 26 at 7 p. m., will hear Dr. Gaylord W. Graves, New York, speak on "Problems of Practice in the First Year of Life."

**Rotation of Interns.**—A rotation plan whereby interns and resident physicians of large hospitals visit smaller hospitals within their region is proving beneficial, according to Dr. Paul Lembcke, associate director of the Council of Rochester Regional Hospitals. The plan was set up two years ago as a five year experiment through a Harkness Fund grant. In addition to the rotation plan, specific needs which the council found were: (1) a program of clinical conferences, (2) a full day session in postgraduate work for nurses, (3) regular notices of medical meetings throughout the territory sent to all physicians, (4) organization of hospital medical staffs and (5) a unified system of recording hospital services and professional activities.

### New York City

**Diphtheria at a Record Low Rate.**—The City of New York Department of Health in its 1948 report listed a record low figure for diphtheria—153 cases and 6 deaths. No major outbreaks of communicable diseases occurred in the city during the year. An increase of 735 newly reported cases of tuberculosis was noted in the first forty-eight weeks of 1948. The report states that more than one half of the persons who died in New York City in 1948 were more than 62 years old.

**Dr. Bernecker Joins Medical Center Staff.**—Dr. Edward M. Bernecker, recently retired commissioner of hospitals in New York City, has been appointed administrator of hospital services with the New York University-Bellevue Medical Center. He will be responsible for the administration of the University Hospital, the Institute of Rehabilitation and various university clinics and for the coordination of clinical programs for teaching in other hospitals associated with the Medical Center. Dr. Bernecker is a graduate of Hahnemann Medical College, Chicago, 1915.

**Dr. Rubin Named Chairman of Medical Staff.**—Dr. Eli H. Rubin, attending physician at Morrisania City Hospital in the Bronx, has been named director of medicine and chairman of the medical staff at Seton Hospital in the Bronx, a 500 bed tuberculosis institution taken over by the city last May 1. Seton Hospital had been operated as a voluntary institution since 1895, and had planned to close because of the heavy financial burden. Acquisition for operation by the department of hospitals was authorized because all cases there were city charges. Dr. Allen Kane is medical director.

**Diabetes Detection Experiment.**—An experiment in diabetes detection was recently conducted on Staten Island by the Richmond County Medical Society in cooperation with the Staten Island Pharmaceutical Association. It made a simple urinalysis available free to all persons in neighborhoods served by local drug stores. Eighty-seven of ninety drug stores on Staten Island and physician members of the medical society participated in the experiment. If the Staten Island experiment shows that the neighborhood approach yields satisfactory results, the experiment, it is reported, will be repeated throughout the country by the National Association of Retail Druggists.

**Personals.**—Dr. Jacob M. Ravid has been appointed pathologist and director of laboratories at the St. Clare's Hospital. Dr. Ravid was formerly pathologist at the Izrael-Zion Hospital, Brooklyn, a position which he has held for fourteen years. He is a graduate of Johns Hopkins University School of Medicine, Baltimore, 1926.——Dr. William H. Shehadi, formerly director of radiology at Mount Vernon Hospital, has accepted the position of professor of radiology and director of the department at Now York Polyclinic Medical School and Hospital.——Dr. Lloyd H. Gaston became director of St. Luke's Hospital January 1, succeeding Dr. Claude W. Munger, who retired because of ill health. Dr. Gaston has been acting director since July 1, 1948.——Dr. George B. J. Glass, New York, has been appointed assistant clinical professor of medicine at the New York University Medical College, Flower and Fifth Avenue Hospitals. Dr. Glass is a graduate of Uniwersytet Jozefa Pilsudskiego, Warsaw, 1927.

**Outpatient Cost Rises 100 Per Cent in Decade.**—The Hospital Council of Greater New York reports that, despite a reduction in outpatient service in recent years, its expense increased more than 100 per cent between 1937 and 1947 in the forty-nine voluntary general hospitals. The report indicated that from 1937 to 1947 the cost of a visit rose 160 per cent, from $1.09 to $2.82. The council made suggestions to improve the service, including saving of time and energy by patients and hospital staff, a supervised nursery for children in conjunction with clinics for adults to facilitate attendance of mothers with young children and reorganization of the outpatient department so that a patient could be examined by several specialists on a first visit. While the cost of such a visit might be more than the average cost of the present type of clinic visit, a more complete service for the community at a lower total cost to the public would be provided, the report said. A change of working hours to correspond to the needs of working persons, coordination of inpatient and outpatient services and the establishment of unit record systems were also suggested.

## OHIO

**Dr. Gall Appointed Professor of Pathology.**—Dr. Edward A. Gall, a graduate of Tulane University of Louisiana School of Medicine, New Orleans, 1931, has been appointed Mary M. Emery professor of pathology and head of that department in the College of Medicine, University of Cincinnati, and director of the department of pathology at Cincinnati General Hospital. In 1941 he became pathologist at Bethesda Hospital in Cincinnati and assistant professor of pathology in the university's college of medicine. Dr. Gall was district physician at the Boston Dispensary and assistant in medicine at Tufts Medical College, Boston, 1933 to 1935; resident in pathology, 1935 to 1937, and assistant pathologist, 1937 to 1940, at Massachusetts General Hospital, Boston; instructor in pathology first at Tufts Medical School, 1935 to 1940, and at the Harvard Medical School, Boston, 1940 to 1941. For the four years beginning 1942, he was on active duty with the Army Medical Corps. He succeeds the late Dr. Richard S. Austin.

## PENNSYLVANIA

**Recommend Changes in Department of Health.**—Recommendations aimed at improving, enlarging and strengthening the State Department of Health were submitted this month to Governor James H. Duff, jointly by the Medical Society of the State of Pennsylvania, the Pennsylvania Psychiatric Society and the Public Charities Association of Pennsylvania. Included in the proposals were the elevation of the Secretary of Health to a major secretariate and the transfer of the Bureau of Mental Health from the Department of Welfare to the Department of Health. It was further recommended that state-owned hospitals and the financial assistance program for state-aided general hospitals also be transferred from the Department of Welfare to the Department of Health.

### Philadelphia

**Lecture on Psychosurgery.**—The fifth Phi Delta Epsilon Lecture was given by Dr. Walter Freeman, Washington, D. C., on "Recent Developments of Psychosurgery" January 6 at Jefferson Medical College.

**Course in Diseases of the Chest.**—The Council on Postgraduate Medical Education of the American College of Chest Physicians and the Laennec Society of Philadelphia will present a postgraduate course in diseases of the chest to be held at Warwick Hotel, Philadelphia, February 28-March 5. It is open to all physicians, although registration will be limited. The tuition fee is $50. Application may be made to the executive offices of the American College of Chest Physicians, 500 North Dearborn Street, Chicago 10.

**Personals.**—Phyllis A. Bott, Ph.D., has been appointed professor of physiological chemistry and chairman of the department at the Women's Medical College of Pennsylvania, Philadelphia. Dr. Bott, a graduate of the University of Wisconsin, became associate professor in 1941, and in 1946 became chairman of the department.——Dr. W. Edward Chamberlain, professor of radiology at Temple University School of Medicine, Philadelphia, gave the annual Phi Chi Lecture at the University of Texas Medical Branch December 1. Dr. Chamberlain discussed medical practices in Poland and Finland, in which countries he recently surveyed medical conditions.——Dr. Wilbur E. Burnett, head of the department of surgery at Temple University School of Medicine, was the honor guest speaker at a postgraduate course in general surgery presented by the Dallas (Texas) Southern Clinical Society.——Dr. D. Franklin Milam was appointed national director of the Planned Parenthood Federation of America January 3. Dr. Milam, a graduate of the University of Chicago Medical School, 1924, has for twenty-five years been a member of the field medical staff of the International Health Division of the Rockefeller Foundation. He succeeds D. Kenneth Rose, who resigned in November.

## TENNESSEE

**Tennessee Adopts Voluntary Prepayment Plan.**—A voluntary program of medical care and insurance has been adopted by the Tennessee State Medical Association. Benefits will be payable whether service is rendered in the home, office or hospital. The schedule of benefits is to be accepted as full payment by participating physicians of services to individuals earning less than $2,400 and to families whose incomes do not exceed $3,600. For persons in the higher income brackets the schedule of benefits allows the doctor to charge more if he wishes. All licensed insurance companies in Tennessee will be encouraged to participate in the program.

## TEXAS

**Appoint Dean of Postgraduate School.**—Dr. Randolph L. Clark Jr., director of the M.D. Anderson Hospital for Cancer Research, Houston, has been appointed dean of the University of Texas Postgraduate School of Medicine, a division of the Texas Medical Center, Houston. Courses offered at first will be short term refresher training courses for graduates.

**Post-Graduate Medical Assembly.**—The International Post-Graduate Medical Assembly of Southwest Texas will be held at the Municipal Auditorium in San Antonio January 25-27. Guest speakers include:

E. Vincent Askey, Los Angeles, Unusual Problems Encountered in the Diagnosis and Treatment of Acute Appendicitis.
Clarke H. Barnacle, Denver, Psychiatry for Senescence.
Sidney Farber, Boston, Treatment of Cancer.
Ray F. Farquharson, Toronto, Canada, Diseases of the Biliary Tract.
Ralph A. Fenton, Portland, Ore., Dangers and Defenses of our Airways.
Jack S. Guyton, Baltimore, Combined Liver Biopsy and Liver Function Study.
C. Howard Hatcher, Chicago, Results of Treatment of Sarcoma Primary in Bone.
Leon O. Jacobson, Chicago, Chemotherapy in the Treatment of Neoplastic and Allied Disorders.
Robert R. Linton, Boston, Thrombophlebitis, Phlebothrombosis, Pulmonary Embolism—Its Cause, Prevention and Treatment.
Jesus Lozoya S., México, D. F., Acute Abdomen in Children.
James L. Poppen, Boston, Surgical Treatment of Hypertension.
Jonathan E. Rhoads, Philadelphia, Pre- and Postoperative Care of Surgical Patients.
James C. Sargent, Milwaukee, Bladder Cancer: Its Recognition and Management.
Paul C. Swenson, Philadelphia, Chest Lesions Easily Confused with or Resembling Neoplasm.
Richard W. Te Linde, Baltimore, Functional Uterine Bleeding.

There will also be luncheons with question and answer periods, a clinical-pathologic conference and scientific and commercial exhibits. A registration fee of $20 covers both meetings and luncheons. For military personnel the fee is $10.

## VIRGINIA

**Dr. Lehman Honored.**—Faculty colleagues and former students recently honored Dr. Edwin P. Lehman of the University of Virginia Medical College, Richmond, in recognition of his twenty years of service as professor of surgery and gyncology. A dinner and reception were given, and Dr. Lehman held a clinic in the medical school amphitheater for former students and residents. Dr. Lehman is now president of the American Cancer Society and the Southern Surgical Association. Dr. Evarts A. Graham, professor of surgery at Washington University, under whom Dr. Lehman worked in St. Louis before coming to the University of Virginia, gave a lecture on cancer of the lungs.

## GENERAL

**Damon Runyon Fund's First Fellowship Award.**—The Damon Runyon Cancer Memorial Fund's first two fellowships in clinical research have been awarded to Dr. Genevieve M. Bader, New York, and Dr. Richard B. Eisenberg, Philadelphia. Thirty-three additional fellows will be named under the $150,000 grant by the fund to the American Cancer Society for administration.

**Director of Mental Hospital Inspection.**—Dr. Ralph M. Chambers, former superintendent of Taunton State Hospital in Massachusetts, has been appointed Director of Inspection and Rating of Mental Hospitals in the United States, a procedure for better standards set up by the American Psychiatric Association. The new system of inspection was made possible by grants from the Psychiatric Foundation.

**Foundation Spends Over $17,000,000 During 1948.**—More than $17,000,000, it is estimated, was spent by the National Foundation for Infantile Paralysis assisting families and communities in the 1948 epidemic; of this more than $6,000,000 was advanced by National Headquarters to chapters facing exhaustion of their funds, and $300,000 was placed in state pools by chapters in areas of unusually high incidence. Expenditure includes a carry-over of care and treatment from previous epidemics. The carry-over from 1948, when more than 27,000 persons were stricken, probably will be the heaviest in the history of the foundation.

**Certification of Radiation Physicists.**—Beginning January 1, the American Board of Radiology will examine and certify physicists as radiation physicists. Three types of certificates will be granted: (1) radiological physics, (2) x-ray and radium physics and (3) medical nuclear physics. The second and the third are both included in the first. Each applicant for any one of the certificates in radiation physics will be required to meet several standards of education and experience. Certification will be based on examination to be conducted at the time and place of regular meetings of the American Board of Radiology. Information may be obtained from Dr. Byrl R. Kirklin, Mayo Clinic, Rochester, Minn.

**College of Surgeons Sectional Meetings.**—The third of a series of seven sectional meetings of the American College of Surgeons will be held in Kansas City on February 11 and 12, with headquarters at the Hotel President. While Illinois, Iowa, Nebraska, Kansas, Oklahoma, Arkansas and Missouri will be the main participating states there is no geographic restriction on attendance. Other sectional meetings will be held in Washington, D. C., Statler Hotel, March 15 and 16; Buffalo, Statler Hotel, March 21 and 22; Butte, Hotel Finlen, April 5 and 6, and Edmonton, MacDonald Hotel, April 12 and 13. The medical profession at large, medical students and hospital personnel are invited to join with the fellows of the college in the meetings. Conferences for hospital personnel will be held concurrently with the medical sessions.

**Grants for Research in Endocrinology.**—Requests to the Committee on Research in Endocrinology, National Research Council for grants-in-aid during the fiscal period from July 1 to June 30, 1950, will be received until February 28. Application blanks may be obtained by addressing the secretary, Division of Medical Sciences, National Research Council, 2101 Constitution Avenue, Washington 25, D. C. In addition to a statement of the problem and research plan, the committee desires information regarding the proposed method of attack, the institutional support of the investigation and the uses to be made of the sum requested. No part of any grant may be used by the recipient institution for administrative expenses. The committee makes grants-in-aid of research in the general field of experimental and clinical endocrinology. However, applications for support of research in the problems of sex in the narrower sense cannot be given favorable consideration, and investigators seeking support in this field should direct their proposals to the Committee for Research in Problems of Sex of the National Research Council.

**Society Elections.**—At the recent meeting of the United States Chapter of the International College of Surgeons, Dr. Custis L. Hall, Washington, D. C., was installed as president; Dr. Henry W. Meyerding, Rochester, Minn., was chosen president-elect; Dr. Arnold S. Jackson, Madison, Wis., secretary, and Dr. Oscar B. Nugent, Chicago, treasurer. The college headquarters is at 1516 Lake Shore Drive, Chicago. ——The American Board of Anesthesiology at its annual meeting in October chose Drs. Paul M. Wood, New York, as president, and Curtiss B. Hickcox, Philadelphia, secretary.——The National Malaria Society meeting in New Orleans, December 5-9, installed Wendell D. Gingrich, Sc. D., Galveston, Texas, as president and chose Dr. Paul F. Russell, New York, president-elect. Martin D. Young, Sc. D., Columbia, S. C., continues as secretary-treasurer.——The Southern Surgical Society at its annual meeting in December chose Dr. Alfred Blalock, Baltimore, as president and Dr. John C. Burch, Nashville, Tenn., secretary.

**Central Surgical Association.**—The Central Surgical Association will meet in Cleveland, February 18-19, with headquarters at the Hotel Cleveland. A clinic day will be held February 17 at the Cleveland Clinic and Western Reserve University Medical School. Physicians presenting papers by invitation are: Frederick de Peyster, Chicago; Milton E. Klinger, Detroit; Oliver H. Beahrs, Rochester, Minn.; William Metcalf, Chicago; Daniel C. Thomson, Ralph D. Mahon, Jr. and Robert Berry, all of Ann Arbor, Mich.; Benjamin M. Gasul, Chicago; Raphael W., Albi, Chicago; Robert Lich, Jr., Joseph E. Maurer and Stephen B. Burdon, all of Louisville, Ky.; Winfield L. Butsch, Buffalo; Sidney Smith, Chicago; E. Thurston Thieme, Ann Arbor, Mich.; Edward J. Hill, Jr., and Harry C. Saltzstein of Detroit and John M. Hammer, Kalamazoo; John W. Derr, Detroit; Wayne B. Martin, Harold L. Method, Stanley W. Tuell and Harry Harding, all of Chicago; H. Harper Kerr, Omaha; Byron D. Bowen and Paul A. Fernbach, Buffalo; Richard H. Lillie, Robert W. Buxton and Ivan F. Duff, all of Ann Arbor, Mich.; D. Emerick Szilagyi and Joseph F. Alsop of Detroit; Wilfred G. Bigelow, Raymond O. Heimbecker and Robert C. Harrison, Toronto, Canada; Alexander J. Anlyan, Columbus, Ohio; Ivan B. Taylor and George R. Granger, Detroit; Max S. Sadove, Willis G. Diffenbaugh and Frances E. Sarver, Chicago; Robert H. LaBree, Duluth, Minn.; James Barron, Detroit, and Ward H. Eastman, Chicago. A symposium on hepatitis will be held Saturday at 12:15 p. m. with Drs. Thomas H. Seldon and James F. Weir, Rochester, Minn., and Isadore S. Ravdin, Philadelphia, taking part. At the annual dinner Friday at 7:30 p. m. Dr. Henry K. Ransom, Ann Arbor, Mich., will deliver the Presidential Address and Dr. Warren H. Cole, Chicago, will speak on "Nationalization of Medicine."

**Anniversary of Blood Program of Red Cross.**—The Red Cross announces that although the first regional center was established in Rochester less than a year ago, the Red Cross national blood program is now operating in every geographic area of the United States. Under the plan to provide the nation with blood and its derivatives for medical use, 19 programs including the statewide service in Massachusetts were in operation by December 20; more than 97,000 pints of blood had been collected and made available without charge to physicians at 614 hospitals and 32 clinics. Other centers have been established in Wichita, Kan.; Stockton, Los Angeles, and San Jose, Calif.; Atlanta, Ga.; Washington, D. C.; Tucson, Ariz.; Omaha, Neb.; Springfield and St. Louis, Mo.; Charlotte, N. C.; Detroit and Lansing, Mich.; Yakima, Wash.; Great Falls, Mont.; Columbus, Ohio, and St. Paul, Minn. Scheduled for early opening are regional centers at Portland, Ore.; Philadelphia; Nashville, Tenn.; Boise, Idaho, and Louisville, Ky. Each regional program maintains a center where the blood collected is tested, type, marked and stored under refrigeration for subsequent distribution. Mobile units serve blood collection centers in suburban and rural areas, in industrial plants, colleges and other places where groups of donors may be assembled. A part of the program is the distribution through state health departments of blood plasma and other derivatives processed from war surplus plasma returned to the Red Cross by the armed forces. Among the derivatives are immune serum globulin fibrinogen and serum albumin. During the last fiscal year, blood products made available through the Red Cross had an estimated current value of $17,000,000.

## PHILIPPINE ISLANDS

**Medical Mission to the Philippines.**—The World Health Organization and the Unitarian Service Committee sent a medical mission to the Philippines in late October made up of Drs. Howard C. Naffziger, San Francisco, chairman; J. Murray Steele, New York; Gumersindo Sayago, Cordoba, Argentina; Amador Guevara, San Jose, Costa Rica, and George Curtis, Columbus, Ohio. The group visited hospitals, clinics, puericulture centers and laboratories, held conferences and delivered lectures on venereal disease and its control in hospitals, clinics, universities and medical societies. On completion of the mission it made the following recommendations for venereal disease control work on the islands: (1) to broaden and extend the present work; (2) to intensify educational work throughout the islands and amplify the study of venereology in all medical schools; (3) to found a Philippine Society of Venereology to arouse professional interest; (4) to establish a statistical office to collect and study reports; (5) to establish technical and administrative autonomy in control work in the department of health; (6) to make available to physicians and nurses and social workers pamphlets on the diagnosis, treatment and control of venereal diseases; (7) to establish a coordinating social service to cover the islands; (8) to enact antivenereal legislation, and (9) to set up a serologic laboratory in each province.

## CORRECTION

**Fee for Course in Public Health.**—In the Dec. 25, 1948 issue of The Journal, page 1274, the following was published among the Postgraduate Courses for practicing physicians: University of North Carolina, School of Public Health, Chapel Hill, N. C.; Subject: Public Health; 9 months, September-June 1949; Fee—$100.00 per month. This should have been $100.00 per quarter.

# Marriages

Anthony J. Parisi, West Springfield, Mass., to Miss Shirley Louise Denny of Lebanon, N. H., November 6.

Robert Gaylord Brown, Circleville, Ohio, to Miss Nancy James Cowles at Greeneville, November 25.

Arthur J. Clarkin Jr., Norwood, R. I., to Miss Barbara Ann Hiborik of Johnstown, Pa., recently.

John Wesley Todd III, Staunton, Va., to Miss Patricia Ellen Coffey of Richmond, November 24.

James Francis Cooney, Milford, Mass., to Miss Rosemary Kuhn of Decorah, Iowa, November 27.

James Nicholas Dudley to Miss Virginia Baird Decker, both of Roanoke, Va., November 20.

Herman S. Shapiro, New York, to Miss Natalie Gelbard of Brooklyn, November 27.

# Deaths

**Samuel Torrey Orton** ⊕ New York; born in Columbus, Ohio, Oct. 15, 1879; University of Pennsylvania Department of Medicine, Philadelphia, 1905; specialist certified by the American Board of Psychiatry and Neurology, Inc.; formerly on the faculty of Harvard Medical School, Boston, and Columbia University College of Physicians and Surgeons; at one time head of the department of psychiatry at the State University of Iowa College of Medicine, Iowa City; lecturer in neurology at Clark University, Worcester, Mass., from 1913 to 1915; past president of the Association for Research in Nervous and Mental Disease and American Psychiatric Association; member of the American Neurological Association, American Association for the Advancement of Science and New York Academy of Medicine; served as clinical director and pathologist at the Worcester (Mass.) State Hospital and director of the State Psychopathic Hospital in Iowa City; neuropathologist at the New York Neurological Institute from 1929 to 1936; in 1943 consultant in language disabilities to the Institute of Pennsylvania Hospital, Philadelphia; scientific director of Pennsylvania Hospital, Philadelphia from 1914 to 1919; recipient of the Thomas W. Salmon Memorial Award and delivered the second lecture in 1936; for many years member of the editorial board of *Archives of Neurology and Psychology;* in 1945 received the honorary degree of doctor of science from the University of Pennsylvania School of Medicine; author of "Reading, Writing and Speech Problems in Children"; died in St. Francis Hospital, Poughkeepsie, N. Y., November 17, aged 69, of bronchopneumonia and fracture of hip.

**Robert Gaylord Davis** ⊕ Rear Admiral, M. C., U. S. Navy, retired, Santa Barbara, Calif.; born in Indianola, Iowa, May 29, 1883; Rush Medical College, Chicago, 1909; entered the U. S. Navy as a lieutenant (jg) in 1912 and advanced through the various ranks to captain in 1937; during his naval service served at the Hospital Corps Training School, Great Lakes, Ill., on the U. S. S. *Wright,* the U. S. S. *Langley,* the U. S. S. *Aroostook* and the U. S. S. *Saratoga;* during World War II served as district medical officer of the 16th Naval District and as medical officer in command of the Naval Hospital and Naval Medical Supply depot at Canacao, P. I., where he was captured by the Japanese forces Jan. 2, 1942 along with members of his hospital staff; liberated from a Japanese prison camp on Aug. 30, 1945 in Mukden, Manchuria, after having been interned for forty-three months; returning to the homeland in September 1945 was assigned to duty as a member of the Naval Retiring Board, San Diego, Calif., and placed on the retired list Oct. 1, 1946; among the decorations that he held was the Legion of Merit; advanced to the rank of rear admiral on the retired list in 1948; fellow of the American College of Physicians; died in San Diego, November 8, aged 65, of pulmonary embolism following an operation for carcinoma of the lung.

**John James Moren** ⊕ Louisville, Ky.; born in London, Ky., Aug. 31, 1871; Louisville (Ky.) Medical College, 1894; Hospital College of Medicine, Louisville, 1895; professor emeritus of neurology at the University of Louisville School of Medicine; member of the House of Delegates of the American Medical Association in 1917; fellow of the American College of Physicians; member of the Association for Research in Nervous and Mental Diseases; past president of the Kentucky State Medical Association and of the Jefferson County Medical Society; served during World War I; member of the examining board for inductees during World War II; member of the staffs of St. Joseph and Norton Memorial infirmaries, General and Children's hospitals and the Masonic Home; died in the Nichols Hospital October 26, aged 77, of hepatic insufficiency.

**John Dooley Lyttle,** Los Angeles; born in New York in 1889; Cornell University Medical College, New York, 1916; professor of pediatrics at the University of Southern California School of Medicine; formerly on the faculty of Columbia University College of Physicians and Surgeons; specialist certified by the American Board of Pediatrics; member of the American Pediatric Society, Harvey Society, New York Academy of Medicine and the American Association for the Advancement of Science; formerly associate attending pediatrician at the Babies Hospital and Vanderbilt Clinic and attending physician at the Willard Parker Hospital of New York; served during World War I; member of the American Red Cross Balkan Commission in Albania in 1919; director of pediatrics at the Children's Hospital; died in the Hospital of the Good Samaritan, November 26, aged 58.

**George Robert Osborn** ⊕ Tulsa, Okla.; born in Perry, Iowa, Feb. 17, 1875; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; fellow of the American College of Surgeons; past president of the Oklahoma State Medical Association and the Tulsa County Medical Society; one of the founders of the Tulsa Public Health Association; formerly a member of the council of the Southern Medical Association; served overseas during World War I; chief of the medical staff of the Salvation Army Home; affiliated with Hillcrest Memorial and St. John's hospitals; died October 10, aged 73.

**William Grady Mitchell** ⊕ San Angelo, Texas; University of Tennessee College of Medicine, Memphis, 1921; fellow of the American College of Physicians; member of the American Heart Association, Southern Medical Association and Texas Heart Association; served during World Wars I and II; formerly instructor in medicine at the University of Pennsylvania School of Medicine, Philadelphia; on the staff of the Shannon Hospital, where he was a member of the board of directors; director of the clinical laboratory at St. John's Hospital; died in Seattle October 8, aged 52.

**Harry Aldrich** ⊕ Fort Wayne, Ind.; Indiana University School of Medicine, Indianapolis, 1914; past president of the Grant County Medical Society; formerly county coroner; served during World War I; affiliated with the Methodist Hospital and the Lutheran Hospital, where he died October 31, aged 63, of periarteritis nodosa.

**Arthur Reginald Butler,** Newington, Va.; Columbian University Medical Department, Washington, D. C., 1899; died November 14, aged 76.

**William P. Dupler,** Crooksville, Ohio; (licensed in Ohio in 1896); formerly county coroner; died October 30, aged 87, of senility.

**Harold Winston Eckel,** Cincinnati; University of Cincinnati College of Medicine, 1938; served during World War II; member of the American Medical Association; affiliated with Christ Hospital, where he died November 5, aged 35, of carcinoma of the transverse colon.

**Jerome Charles Evanson** ⊕ Assistant Surgeon, Lieutenant (jg) U. S. Navy, Echo, Minn.; Marquette University School of Medicine, Milwaukee, 1946; entered the regular navy in 1947; last duty station, Yard Dispensary, Puget Sound Naval Shipyard, Bremerton, Wash.; died in the U. S. Naval Hospital, Bremerton, November 19, aged 26, of blastomycotic abscess of the cerebellum.

**Lonie Clarence Floyd** ⊕ Olanta, S. C.; Medical College of the State of South Carolina, Charleston, 1910; member of the Selective Service Board during World War II; died November 2, aged 66, of coronary occlusion.

**William Schaffer Glenn Jr.,** State College, Pa.; Eclectic Medical College, Cincinnati, 1915; served overseas during World War I; died November 9, aged 60, of heart disease.

**Brooks David Good** ⊕ Colorado Springs, Colo.; Tulane University of Louisiana School of Medicine, New Orleans, 1919; member of the American College of Chest Physicians; served during World War I; physician in charge of the Cragnor Sanatorium; died in St. Francis Hospital, November 4, aged 52, of acute hepatitis and acute nephritis.

**Walter James Halloran** ⊕ Yonkers, N. Y.; Fordham University School of Medicine, New York, 1918; fellow of the American College of Surgeons; member of the National Gastroenterological Association; served during World War I; physician to the selective service board during World War II; for many years medical examiner to the Yonkers Civil Service Commission; affiliated with St. John's Riverside Hospital; died November 14, aged 52, of coronary occlusion.

**Charles Russell Hancock,** Atlanta, Ga.; Medical College of Ohio, Cincinnati, 1904; member of the American Medical Association; died in St. Joseph's Infirmary in November, aged 69, of carcinoma of the prostate.

**Orrin Winfield Haulman** ⊕ Youngstown, Ohio; Western Reserve University School of Medicine, Cleveland, 1918; affiliated with the South Side Unit and North Side Unit of the Youngstown Hospital, where he died November 3, aged 60, of coronary thrombosis.

**Laurence Sherman Jennings,** San Francisco; University of Chicago School of Medicine, 1939; member of the American Medical Association; on the staff of the Stanford University Hospital; served during World War II; died November 5, aged 34.

**Manfred Kraemer** ⊕ Newark, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1929; fellow of the

American College of Physicians; member of the National Gastroenterological Association; past president of the New Jersey Gastroenterological Society; specialist certified by the American Board of Internal Medicine; served during World War II; consultant at the Irvington (N. J.) General Hospital; affiliated with Presbyterian, St. James and Newark City hospitals; died November 12, aged 44, of coronary occlusion.

**Leo Thomas McKee** ⊕ St. Marys, Pa.; Georgetown University School of Medicine, Washington, D. C., 1928; affiliated with the Elk County General Hospital, Ridgway, and the Andrew Kaul Memorial Hospital; died in the Robert Packer Hospital, Sayre, October 26, aged 45, of carcinoma of the liver.

**Samuel Emerson McMaster** ⊕ Akron, Ohio; Ohio Medical University, Columbus, 1906; affiliated with Peoples Hospital, where he died October 31, aged 67, of coronary thrombosis.

**Howard Douglas Mailey,** Oakland, Calif.; Boston University School of Medicine, 1942; certified by the National Board of Medical Examiners; specialist certified by the American Board of Radiology, Inc.; member of the American Medical Association, Massachusetts Medical Society and the New England Roentgen Ray Society; at one time affiliated with the Lahey Clinic in Boston; died in Providence Hospital October 14, aged 33, of acute coronary occlusion, arteriosclerosis and diabetes mellitus.

**Seth Heustis Martin,** Morrisville, Vt.; Baltimore Medical College, 1910; member of the American Medical Association and of the American Urological Association; served during World War I; on the staff of the Copley Hospital; formerly on the faculty of the University of Vermont College of Medicine and on the staff of the Mary Fletcher Hospital, in Burlington, where he died October 27, aged 66, of hypertension and arteriosclerosis.

**William Edgar Matthews,** Johnstown, Pa.; Jefferson Medical College of Philadelphia, 1887; member of the American Medical Association; past president of the Cambria County Medical Society; formerly chief medical inspector for the state board of health and medical director of Cambria County; during World War I chief examining physician to the draft board; affiliated with the Conemaugh Valley Memorial Hospital, where he died October 29, aged 88, of arteriosclerosis and chronic nephritis.

**Charles W. Miller,** Preston, Iowa; State University of Iowa College of Medicine, Iowa City, 1887; served as county coroner and as city health physician; died in the City Hospital, Savanna, Ill., October 11, aged 89, of leukemia.

**Lawrence T. Minish** ⊕ Frankfort, Ky.; Kentucky School of Medicine, Louisville, 1898; an officer during World War I; served as vice president of the Kentucky State Medical Association and as a member of the state board of health; on the staff of King's Daughters' Hospital; died October 20, aged 71, of cerebral hemorrhage.

**Hewitt Clyde Myers** ⊕ Steelton, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1900; past president of the Harrisburg Academy of Medicine and the Dauphin County Medical Society; for many years surgeon for the Pennsylvania Railroad; died October 24, aged 73, of acute cardiac dilatation.

**Samuel Heyman Nerenstone,** New York; Cornell University Medical College, New York, 1923; member of the American Medical Association; on the staff of the Lincoln Hospital; died October 25, aged 50.

**Hubert Earl Northrup,** Detroit; Detroit College of Medicine, 1912; past president of the Detroit Obstetrical and Gynecological Society; served during World War I; on the staff of the Highland Park (Mich.) General Hospital; died in Highland Park, Mich., October 31, aged 61.

**Oscar Joel Nothenberg** ⊕ Chicago; Dearborn Medical College, Chicago, 1907; specialist certified by the American Board of Otolaryngology; affiliated with the Swedish Covenant and American hospitals; died November 9, aged 74, of coronary thrombosis.

**Jeptha Marion Olin,** Vermilion, Ohio; Cleveland Homeopathic Medical College, 1899; died September 30, aged 85, of myocardial infarction.

**James Patrick Owens,** Memphis, Tenn.; College of Physicians and Surgeons, Memphis, 1910; member of the American Medical Association; served overseas during World War I; affiliated with St. Joseph's Hospital; died October 5, aged 61, of coronary occlusion.

**Charles Russell Parsons,** Sweet Springs, Mo.; University of Tennessee College of Medicine, Memphis, 1938; member of the American Medical Association; interned at Kansas City (Mo.) General Hospital; on the visiting staffs at Research Hospital in Kansas City and Fitzgibbon Memorial Hospital in Marshall; died in Morrisville, October 22, aged 41, of injuries received in an automobile accident.

**Edgar Allen Patton,** Knoxville, Tenn.; Mississippi Medical College, Meridian, 1911; Memphis (Tenn.) Hospital Medical College, 1913; served during World War I; for many years affiliated with the Veterans Administration; died October 11, aged 62, of congestive heart failure.

**Lewis Luallen Patton,** Chattanooga, Tenn.; Meharry Medical College, Nashville, 1912; died recently, aged 64, of cerebral hemorrhage.

**Howard Love Prince** ⊕ Rochester, N. Y.; Cornell University Medical College, New York, 1907; served during World War I; member of the American Association of Industrial Physicians and Surgeons; affiliated with Rochester General Hospital, Strong Memorial Hospital, Genesee Hospital and the County Infirmary; died November 18, aged 63.

**Edward North Reed** ⊕ Santa Monica, Calif.; Rush Medical College, Chicago, 1904; an Associate Fellow of the American Medical Association; specialist certified by the American Board of Orthopaedic Surgery; member of the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; served during World War I; affiliated with the Orthopaedic Hospital in Los Angeles and the Santa Monica Hospital; died in the Veterans Administration Hospital, West Los Angeles, October 18, aged 71.

**Gardner Shaw Reynolds,** Danville, Ill.; University of Minnesota Medical School, Minneapolis, 1924; specialist certified by the American Board of Radiology; certified by the National Board of Medical Examiners; member of the American Medical Association, Radiological Society of North America and the American College of Radiology; served as radiologist at St. Elizabeth Hospital; died in the Veterans Administration Hospital, St. Cloud, Minn., October 16, aged 50, of coronary thrombosis.

**Henry Gilbert Reynolds** ⊕ Paducah, Ky.; Louisville (Ky.) Medical College, 1897; specialist certified by the American Board of Otolaryngology; past president of the Kentucky State Medical Association and the McCracken County Medical Society; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; on the staff of Illinois Central Hospital; died October 18, aged 76, of cerebral hemorrhage.

**Addison O. Roberts,** Round Lake, N. Y.; Albany (N. Y.) Medical College, 1882; served as school physician and as health officer both of Rensselaer and in the town of Malta; on the visiting staff of Memorial Hospital in Albany; died September 28, aged 92, of arteriosclerosis.

**Thomas Avery Rogers** ⊕ Plattsburg, N. Y.; Albany (N. Y.) Medical College, 1896; died recently, aged 75, of hypertensive cardiorenal disease and cerebral vascular accident.

**James Wilson Rollo** ⊕ Lubbock, Texas; University of Oklahoma School of Medicine, Oklahoma City, 1913; served during World War I; local surgeon for the Atchinson, Topeka and Santa Fe Railroad; for many years health officer; died recently, aged 65, of heart disease.

**Abraham Rose,** Elizabeth, N. J.; Medico-Chirurgical College of Philadelphia, 1914; member of the American Medical Association; physician to the police department; on the staffs of the Alexian Brothers Hospital and St. Elizabeth's Hospital, where he died October 31, aged 61, of coronary thrombosis and diabetes mellitus.

**Robert M. Ross,** Temple City, Calif.; Beaumont Hospital Medical College, St. Louis, 1898; died in St. Luke's Hospital, Pasadena, October 16, aged 75, of cerebral hemorrhage and hypertension.

**Isaac Machol Rubin** ⊕ Cleveland; University of Wooster Medical Department, Cleveland, 1906; on the courtesy staff of the Mount Sinai Hospital, where he died October 22, aged 68, of carcinomatosis.

**Louis Frederick Ruschhaupt** ⊕ Milwaukee; Rush Medical College, Chicago, 1902; associate clinical professor of medicine at Marquette University School of Medicine; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; affiliated with Milwaukee County Hospital, Johnston Emergency Hospital and the Evangelical Deaconess Hospital, where he died October 1, aged 69, of carcinoma of the bladder.

**Oscar John Ruzicka,** Brooklyn; Eclectic Medical College of the City of New York, 1908; also a pharmacist; died November 6, aged 72.

**William Spiller Sayers,** Wytheville, Va.; University of Virginia Department of Medicine, Charlottesville, 1893; formerly health officer of Norfolk; died October 31, aged 76, of acute cardiac failure.

**Jacob Foster Shelley** ⊕ Elmdale, Kan.; Rush Medical College, Chicago, 1891; died in the Newman Memorial County Hospital in Emporia, October 23, aged 83, of senility.

**Benjamin Harry Sherman** ⊕ Los Angeles; Northwestern University Medical School, Chicago, 1904; specialist certified by the American Board of Radiology, Inc.; member of the Radiological Society of North America, Inc.; on the staff of Los Angeles County Hospital; died in Hollywood Presbyterian Hospital October 18, aged 69, of aplastic anemia.

**Hiram Edward Silverstone,** Kansas City, Mo.; Missouri Medical College, St. Louis, 1898; died in Kansas City, Kan., October 19, aged 72, of ventricular fibrillation.

**Alexander Hamilton Stevens Jr.,** New Bern, N. C.; University of Georgia Medical Department, Augusta, 1932; member of the American Medical Association; served during World War II; killed October 21, aged 43, in an automobile accident.

**Alexander Porter Stewart,** St. Petersburg, Fla.; University of Toronto Faculty of Medicine, Toronto, Canada, 1905; past president of the Lyon County (Ia.) Medical Society; served during World War I; died in Veterans Administration Hospital, Bay Pines October 10, aged 68, of coronary thrombosis.

**Wallace T. Stewart,** Cynthiana, Ky.; University of Louisville Medical Department, 1890; died September 14, aged 80, of cerebral hemorrhage.

**Samuel Henry Stith,** Brandenburg, Ky.; University of Nashville (Tenn.) Medical Department, 1901; served during World War I; major, medical reserve corps, not on active duty; medical examiner for the county draft board during World War II; died in Louisville October 19, aged 79, of carcinoma of the pancreas.

**Frank Ulmer Swing** ⊕ Cincinnati; Medical College of Ohio, Cincinnati, 1904; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; served during World War I; affiliated with St. Mary's and St. Francis hospitals; died recently, aged 75, of cerebral hemorrhage.

**Samuel Aaron Tannenbaum,** New York; Columbia University College of Physicians and Surgeons, New York, 1898; died October 31, aged 74, of cerebral hemorrhage.

**Daniel E. Taylor,** Velpen, Ind.; Hospital College of Medicine, Louisville, Ky., 1903; member of the American Medical Association; affiliated with Welborn Memorial Baptist Hospital, Evansville; died October 25, aged 79, of carcinoma of the stomach.

**Ernest Burdett Taylor,** Toledo, Ohio; Toledo Medical College, 1903; member of the American Medical Association and the Academy of Medicine of Toledo and Lucas County; served during World War I; on the visiting staffs of the Toledo and St. Vincent's hospitals; on the honorary staff of Flower Hospital, where he died October 6, aged 69, of cerebral thrombosis and gastrointestinal hemorrhage.

**Giovanni Tenca,** New York; Regia Università degli Studi di Parma, Facoltá di Medicina e Chirurgia, Italy, 1920; for many years medical examiner for the Equitable Life Assurance Society; died in the Memorial Hospital October 16, aged 53, of lymphosarcoma.

**James Grimes Thames,** Milton, Fla.; Atlanta College of Physicians and Surgeons, 1910; died October 2, aged 64, of heart disease.

**David L. Tilderquist** ⊕ Duluth, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1903; specialist certified by the American Board of Ophthalmology and the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; affiliated with St. Luke's Hospital and St. Mary's Hospital; died September 26, aged 76, of cerebral thrombosis.

**Johnson Edward Turnage,** Kosciusko, Miss.; Memphis (Tenn.) Hospital Medical College, 1902; member of the American Medical Association; on the staff of the Montfort Jones Memorial Hospital, where he died October 26, aged 68, of coronary thrombosis.

**Arthur Dale Tuttle,** Live Oak, Calif.; College of Medical Evangelists, Loma Linda and Los Angeles, 1935; member of the American Medical Association; certified by the National Board of Medical Examiners; served during World War II; died October 9, aged 44.

**Carl Henry Wachenfeld,** St. Louis; Washington University School of Medicine, St. Louis, 1910; member of the American Medical Association; served during World War I; member of the staff of the Missouri Baptist Hospital; medical director of the State National Life Insurance Company; died in the Veterans Administration Hospital, Jefferson Barracks, October 18, aged 60, of heart disease.

**William Greenleaf Ward,** Lynn, Mass.; Harvard Medical School, Boston, 1899; formerly library trustee of the school board; on the courtesy staff of the Lynn Hospital, where he died October 28, aged 75, of arteriosclerosis.

**Henry Washeim Jr.** ⊕ Utica, N. Y.; Yale University School of Medicine, New Haven, 1928; specialist certified by the American Board of Pediatrics; member of the American Academy of Pediatrics; affiliated with St. Luke's, St. Elizabeth and Utica State hospitals; died October 20, aged 48, of cerebral hemorrhage and cerebral aneurysm.

**Lionel Bernard Watkins,** Nashville, Tenn.; University of Nashville Medical Department, 1901; died October 22, aged 71, of cirrhosis of the liver, chronic nephritis and hypertension.

**Edward Andrew Weisser** ⊕ Pittsburgh; University of Pennsylvania Department of Medicine, Philadelphia, 1898; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; on the staffs of the Roselia Foundling and Maternity Hospital and St. Francis Hospital, where he died October 18, aged 72, of metastatic carcinoma.

**Leonard Lee Welch,** Marietta, Ga.; University of Pennsylvania School of Medicine, Philadelphia, 1921; member of the American Medical Association; member of the board of directors of the Marietta Hospital; surgeon for the Nashville, Chattanooga and St. Louis Railway; died in Atlanta October 19, aged 53, of coronary occlusion.

**Hippolyte Marcus Wertheim,** New York; born in New York, Feb. 12, 1898; University and Bellevue Hospital Medical College, New York, 1920; member of the American Medical Association; fellow of the American College of Surgeons; specialist certified by the American Board of Surgery; associate professor of clinical surgery at the New York University College of Medicine and past president of the alumni association; affiliated with Bellevue, French and Goldwater Memorial hospitals; died November 8, aged 50, of carcinoma of the pancreas.

**George Lewis Wickes** ⊕ Medical Inspector, Commander, U. S. Navy, retired, Ventnor, N. J.; New York University Medical College, New York, 1896; entered the U. S. Navy on April 27, 1904 and retired June 30, 1936; died in the U. S. Naval Hospital, St. Albans, N. Y., September 30, aged 74, of carcinoma of the bladder.

**Morrill Edwin Withrow,** International Falls, Minn.; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1897; served as mayor and as city and county health officer; formerly affiliated with the U. S. Public Health Service; died October 13, aged 78, of cardiac decompensation and cerebral hemorrhage.

**James McClain Young,** Albany, Ill.; Chicago College of Medicine and Surgery, 1913; formerly owner of a hospital bearing his name; affiliated with Kewanee Public and St. Francis hospitals in Kewanee; died October 17, aged 62, of cerebral hemorrhage.

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## DIED WHILE IN MILITARY SERVICE

**William Francis Conway** ⊕ Lieutenant Colonel, M.C., U. S. Army, Carlisle, Pa.; George Washington University School of Medicine, Washington, D. C., 1932; appointed first lieutenant, medical corps, regular army, Dec. 7, 1936; promoted through the various grades to that of lieutenant colonel on March 5, 1943; died Aug. 8, 1943, aged 36, of carcinoma.

**Sarkis Der Sarkissian,** Chicago; University of Michigan Medical School, Ann Arbor, 1926; member of the American Medical Association; served overseas during World War II; a flight surgeon and assistant post surgeon with the rank of lieutenant colonel, medical reserve corps of the U. S. Army attached to the Sheppard Field Air Base at Wichita Falls, Texas; died near Muldrow, Okla., November 1, aged 48, of injuries received in an airplane crash.

# Foreign Letters

## LONDON

*(From Our Regular Correspondent)*

Dec. 18, 1948.

### Unsatisfactory Remuneration of Doctors in the National Health Service

Further experience with the National Health Service produces increased dissatisfaction of the doctors and something different from the rosy picture which the Minister of Health said would be the admiration of the world. Complaints of increased work and falling incomes become louder, especially from practitioners in rural, semirural and suburban areas where the proportion of the elderly and the invalid is high. At the annual conference of local medical committees held in the British Medical Association House it was agreed that the amount of work imposed on the doctor by the inclusion of the whole population, instead of the workers only, has been greatly increased and that, while in certain parts of the country the doctor's financial position may have been improved, there are large areas where his income has been halved or even further reduced.

Dr. H. Guy Dain, Chairman of the Council of the British Medical Association, agreed that the present capitation fee is grossly inadequate. He illustrated the evils of the "something for nothing" pointed out in previous letters to THE JOURNAL. It is not difficult, he said, to foresee the extra work which will fall on the doctor. It will be a strange mother nowadays, when the doctor is in attendance, who does not ask him to look at other members of the family. It is now not a question of visiting a patient but of visiting a family. It is overwhelming us and in the forthcoming winter may cause a complete breakdown of the whole service. On the question of pay, not only is the capitation fee insufficient, but it is not properly distributed. A doctor who is suffering hardship should have an immediate claim to be paid out of special funds.

Dr. E. A. Gregg, chairman of the Insurance Acts Committee, said that in view of the complaints from all over the country they cannot wait for further details before putting forward a claim for improved remuneration, that in rural, semirural, suburban and certain special areas doctors have realized that their incomes are vanishing, that the doctor has lost his private practice but the population is not sufficient for a list which would maintain his economic position and that the mileage allowance for rural practitioners is insufficient.

A fundamental difficulty was voiced by one of the delegates. Today the income of doctors bears no relation to the amount of work done. A large list means a large income, but is an inducement to perfunctory work; indeed, may render any other impossible. But a more conscientious doctor, who will not undertake more patients than he can properly attend, gets a correspondingly small income.

### War Against the Tsetse Fly

The Government has published three progress reports on the war against the tsetse fly which is being waged in Africa. Though much is now known about this fly, which is the carrier of grave disease to man and cattle, it still has a grip on an area of Africa twice as large as the United States. Prof. P. A. Buxton, who is studying the problem in East Africa and the Rhodesias, has concluded that the types of fly which inhabit narrow strips beside water have been controllable for years, though often at undue cost. Those that now inhabit belts of bush can be expelled in certain environments, though by no means in all. The work of the last twenty years has been recolutionary, and its importance is not yet realized, even in Africa. He challenges the belief that the tsetse fly is everywhere on the advance, which he attributes to the fact that its arrival in new areas is immediately recognizable by its effects, whereas its retreats require careful research to discover. He gives figures to show that infection and death from the disease in man are so low as to be unimportant. It is the disease among cattle, on which so much of the African population depend, that above all needs to be tackled.

Prof. T. M. Davey deals with the conditions in West Africa and in non-British territories. In British West Africa the disease is a fundamental barrier to progress. It causes a direct loss, at a low estimate, of $4,000,000 a year. Indirect losses cannot be computed but are causing progressive impoverishment of the people.

Dr. T. A. Nash's report on the Anchau settlement scheme describes the clearance of a corridor 70 miles long and 10 miles wide in Northern Nigeria. Here under the Sleeping Sickness Service of the Nigerian Medical Department 60,000 persons have been settled in a new hygienic tsetse-free town.

## PARIS

*(From Our Regular Correspondent)*

Dec. 2, 1948.

### International Union Against Tuberculosis

A meeting of the executive committee and council of the International Union Against Tuberculosis was held at the Union's Headquarters, 66 Boulevard St-Michel, Paris, September 27-29, under the presidency of Professor Lops de Carvalho. The representatives of seventeen nations were present. The American representatives included: Dr. Perkins, managing director of the National Tuberculosis Association, Dr. Martin Cummings, Dr. Reuling, Dr. Kendall Emerson, Dr. Hilleboe and Mr. Hopkins.

During the administrative session Prof. Etienne Bernard, professor of phthisiology at the University of Paris, was elected secretary general of the Union, to replace the late Professor Besançon. Prof. Omodei Zorini, director of the Carlo Forlanini Institute, in Rome, was nominated to represent Italy on the executive committee. The first scientific meeting was devoted to "Recent Studies of Media for the Cultivation of the Tubercle Bacillus." The opening report was read by Dr. Cummings, director, Tuberculosis Evaluation Laboratory, U. S. Public Health Service, who gave an account of the progress achieved through the researches of René Dubos. Prof. Paul Courmont, Prof. Hauduroy, Prof. Gernez-Rieux, Drs. André Meyer and Costil, Dr. Bretey and Drs. Braun and Kreiss. Prof. Omodei Zorini took part in the discussion. Prof. Etienne Bernard read the opening report on "Treatment of Nonmiliary Tuberculosis in the Adult with Streptomycin." According to him in acute pneumonic or bronchopneumonic forms streptomycin enables the patient to endure a dangerous situation; in subacute and nodular forms the action of streptomycin is in most cases remarkable and similar to what has been observed with miliary forms. As regards cavernous tuberculosis, the closure of a cavity with the disappearance of bacilli has been secured in 10 per cent of cases. The combined treatment, streptomycin with collapse therapy or streptomycin with surgical treatment has proved most valuable and has great prospects. The report gave rise to a discussion in which the following speakers took part: Prof. V. Fici, Dr. Pierre Bourgeois, Dr. Jullien, Prof. Costantini, Prof. Omodei Zorini, Prof. U. Carpi and Dr. Duroux.

The next meeting of the Council will be held in Paris in July 1949.

### Sensitivity to Streptomycin in Nurses

In the tuberculosis ward of the Laennec Hospital, Professor E. Bernard, Melle Lotte and C. Wolff examined nurses who had been in contact with streptomycin. Out of 70 nurses, 33 have shown either oculopalpebral disorders or eczematous eruptions on the hands and wrists and in the periorbital and peribuccal regions; in 9 cases the eruptions extended to the thorax, legs and feet; in 7 cases there was pruritus only at the same sites. These disorders occurred in one to three months in 17 cases, three to six months in 16, and more than six months in 7. In most of the cases, these disorders improved or disappeared after a few days of suspension of work (save for 1 case, when eczematous patches still persisted after several months) and they reappeared almost immediately when contact with streptomycin was resumed. In 8 cases, discrete disorders were experienced and disappeared without necessity for interruption of work. The authors have made cutaneous tests with streptomycin on 40 nurses who had been in contact with streptomycin for a long time. Out of 28 nurses showing reactions, 20 have positive reactions and 8 negative; among 12 nurses showing no disorders, though they had handled the antibiotic for nine to twelve months, six tests gave positive reactions and 6 negative. Disorders may not occur in subjects with positive reactions, if the necessary precautions, wearing of gloves and spectacles, are taken.

### Doctor Honoris Causa

The degree of Doctor Honoris Causa has been conferred on the following: Sir Jack Drummond, F.R.S., professor of biochemistry at the London University, Corter professor of pediatric clinics of the Leyde Faculty of Medicine; Dos Santos, professor at the Lisbon Faculty of Medicine; John Maurice Clark, professor at Columbia University, New York; J. C. Chavez, director of the Institute of Cardiology of the Mexico Faculty of Medicine, and L. C. Pauling, professor of chemistry at the California Institute of Technology, Pasadena, Calif.

## DENMARK

*(From Our Regular Correspondent)*

Copenhagen, Dec. 8, 1948.

### Inauguration of the New Domus Medica

On the night of June 18, 1944, the Germans burst into the headquarters of the Danish Medical Association, the beloved Domus Medica, symbol of all that is best in the Danish medical profession, bombing it and burning it to the ground. By this senseless act of hooliganism, the Germans imagined that the ever growing activity of the Danish doctors in the underground movement against them would be paralyzed. Altogether, twenty-one Danish doctors were murdered by the Germans, either in cold blood after a semblance of a trial, by anonymous assassination or by the slow torture of the concentration camp. But the spirit of the Danish doctors was never broken, and they soon set about the task of raising a new Domus Medica after the evacuation of Denmark by the Germans. But the funds and time required for rebuilding the Domus Medica on the old site were such that the situation seemed almost hopeless. Then, suddenly and quite unexpectedly, the Danish Medical Association was able to purchase an already existing, palatial building, the old Plessen Palace. The cost was high, and the Association had to exhaust nearly all its funds, but it was a magnificent bargain all the same.

On Oct. 22, 1948, in the presence of the King and Queen of Denmark and distinguished representatives of the medical profession at home and abroad, the new Domus Medica was solemnly inaugurated, and a mural memorial to the twenty-one Danish doctors murdered by the Germans was unveiled. Speaking on this occasion, Professor Mogens Fog drew attention to this memorial, which is the first object to strike the eye as the visitor enters the new Domus Medica. The inscription between the two rows of names is taken from two lines of a poem composed by Dr. Aage Berntsen in honor of those glorious days in May 1945 when Denmark became once again a free country. These lines run: "Du hörte op med at vaere, men Danmark lever med aere," which may be translated with: "You ceased to live, but Denmark lives with honor." Thanks to the spaciousness of the new Domus Medica, it will be possible for part of it to be turned into a residential college for students whose parents are doctors. Other sections of the building will be put at the service of various scientific bodies other than the Danish Medical Association, whose expenses will thereby be reduced to a certain extent.

### Claim Lowest Tuberculosis Death Rate

The claim, implied by this heading, that Denmark has a lower tuberculosis death rate than any other country in the world may possibly provoke a challenge from some quarter or other, but it will be a close race in any case. In 1939, the Danish tuberculosis death rate had been reduced to 34 per hundred thousand. During the following, wartime years, there was a slight rise reflecting wartime conditions, but as early as 1943 this slight rise was checked, and in 1945 the figure was down to 33. In 1946 it was down still further to 32, and in 1947 it was down to the record low level of 30 per hundred thousand. In this year the tuberculosis death rate was nearly twice as high in Copenhagen, where it was 44, as it was in the country districts (23 per hundred thousand). Why did World War II have so slight an influence on the tuberculosis death rate, while World War I sent it rocketing aloft? Professor Knud Faber found an answer to this question at the last annual meeting of the Danish National Association Against Tuberculosis, pointing out that in World War I Denmark allowed herself to be drained of animal food stuffs, meat in particular. In World War II, and in spite of being occupied by the German army, Denmark was able to keep up a rather steady supply of meat, butter and other farm products for home consumption. The Germans were so afraid of killing the goose that lays golden eggs that the Danish farmer was encouraged to produce food diverted by the ingenuity of the Danes to home consumption.

A curious and at first sight disquieting observation made by Professor Faber is that there has lately been a decided rise in the number of new notifications of tuberculosis in Denmark. In the three years 1944, 1945 and 1946 the number of new notifications of tuberculosis was 3,300, 3,500 and 4,100, respectively. In his opinion this rise is much more apparent than real, for it reflects the growing attention paid to environmental studies in the course of which many new cases are unexpectedly discovered. It is a pleasing thought that Denmark has of late made antituberculosis work an article for export; witness the pioneer work of the Danish Red Cross with the organizations of teams of doctors for carrying out BCG vaccinations on wholesale lines in various European countries.

### "Antabus," A New Remedy for Alcoholism

In the organ of the Danish Medical Association (*Ugeskrift for Laeger*) for October 21, Dr. O. Martensen-Larsen has given an encouraging account of his experiences in some 300 cases of alcoholism with treatment with tetraethylthiuram disulfide, or "antabus," during the first part of 1948. Of the first 50 patients kept under observation for more than six months, 35 had recovered or achieved considerable improvement. The remaining 15 had discontinued this treatment for some reason or other. Little happens when "antabus" tablets are swallowed by themselves, but when they are followed up by even small doses of alcohol they give rise to such discomfort that the patient soon acquires a dislike for alcohol. It is suggested that this reaction depends on the formation of acetaldehyde in the blood, experiments on animals having shown that the intravenous injection of acetaldehyde can give rise to a similar reaction.

## ITALY

*(From Our Regular Correspondent)*

FLORENCE, Dec. 10, 1948.

### Medical-Surgical Association of Romagna

A meeting of this association was held in San Marino with Professors Fontana and Cavina as chairmen. Professor Pieri discussed vagotomy in the treatment of gastric disorders. He reported his research on the physiology of the vagus nerve in man and described its clinical application, i. e., by practicing vagotomy in the treatment of certain gastric disturbances. His experience is based on 144 patients operated on, 8 of them with gastric neurosis and 136 with ulcer. In the former group treatment was successful in 3 cases of hypersthenic dyspepsia, 2 cases of mediogastric spasm and 2 cases of intractable vomiting. Results were less favorable in 1 case of gastric attacks from tabes. The results obtained with vagotomy in the treatment of gastric ulcer were on the whole very satisfactory, and the speaker believes it safe to conclude that vagotomy can cure peptic ulcer in its various manifestations and is likely also to prevent it.

Professor Pieri illustrated with many pictures the technic of supradiaphragmatic and infradiaphragmatic vagotomy. Six of 144 patients operated on died (mortality rate of 4.15 per cent), 4 of them from bronchopneumonia and 2 from circulatory collapse. In the discussion which followed the report, some in attendance were in favor of Professor Pieri's statements; Franchini, however, expressed doubt whether such intervention may be harmful to the patient. According to Professor Schiassi, although the vagus nerve may be of etiologic importance in gastric ulcer, a concurrence of other anatomic and psychonervous conditions must be considered. The so-called ulcer disease affects a large number of patients whom Schiassi considers neurotic, in whom repeated psychic disturbances may induce the occurrence of ulcer. Constitutional causes and nervous and alimentary disorders slowly prepare the ground for the formation of gastric ulcer, and some symptoms, for example, an inflammation of the stomach observed at the operation table, may not be attributed to the action of the vagus.

Battistini likewise, who studied the research of American and Italian authors, recommended caution concerning the fate of patients who submit to the complete interruption of a nerve which dominates the entire abdominal vegetative life. He recalled that Walters and his co-workers at the Mayo Clinic obtained results with vagotomy which were not very favorable.

Cavina of Florence discussed Millin's new method of prostatectomy, described the technic and some of his own modifications of this method which may simplify the original Millin' operation. After preparatory treatment with penicillin, calcium and vitamin K, and after general anesthesia with ether, the patient is placed in the Trendelenburg position. A short median suprapubic incision in the abdominal wall is made, the rectus muscles are separated with a Gosset bistoury and the bladder and the prostatic capsule are exposed. The latter is then incised with a median incision, and one proceeds to enucleate the adenoma with the index or middle finger of the right hand while the index and middle finger of the left hand are introduced in the rectum as in Freyer's operation. The adenoma may be removed with a suitable forceps. From the meatus of the urethra across the prostatic cavity one introduces into the bladder a large Nélaton catheter. The breach of the prostatic capsule is sutured as well as the abdominal wall after previous dusting of the Retzius' cavity with sulfonamide powder. The advantages of this new method are minimum shock, little hemorrhage and little postoperative suffering. In the hospital of S. Giovanni di Dio in Florence, which is under the direction of the speaker, 30 patients have been operated on according to this method and the results were highly satisfactory.

### Roentgen Therapeutic Experience in Syndromes of Disturbed Metabolism

At a meeting of the Medical Academy of Genoa, Cignoli stated that the effects of roentgen therapy on the various tissues which constitute the epiphyses of bones cannot at present be attributed to a simple and single mechanism consisting of proteinemic equilibrium. The speaker restated that it may be useful to study further the Hand-Schüller-Christian syndrome, a many-faceted disorder with functional disturbances and anatomopathologic changes which involve the reticuloendothelial system, the water metabolism, the lipid metabolism; diabetes insipidus, another syndrome with many forms, with predominance of water-salt metabolism and of protein metabolism; lipid nephrosis, with sodium, water, lipid and protein changes. The speaker concluded his report by stating that a satisfactory interpretation of the effects of roentgen therapy on the bones will be possible only when experience is available on a large number of cases similar to the syndromes mentioned, together with a large number of additional observations on patients such as those mentioned.

## PERSIA

*(From a Special Correspondent)*

BAHREIN ISLAND, PERSIAN GULF, Dec. 13, 1948.

### Medical Congress in Persian Gulf Area

A Medical Congress was held under the auspices of the Bahrein Island Medical Society on Nov. 4, 1948. All doctors working in the Persian Gulf area were invited, and thirty-six doctors were able to attend. This congress, the first of its kind in this area, was in some ways of an experimental nature. It was desired primarily to exchange ideas held by European, American and Indian doctors as to etiology, diagnosis and treatment of diseases endemic in this area. Secondly, it was felt desirable to determine interest and the number of doctors who could attend such a congress with a view to forming a more closely knit organization of medical men. Thirdly, it was believed that a meeting of this kind would do much so stimulate medical thinking in a section of the world where there is little access to large medical centers.

After a few introductory remarks by the chairman, Dr. Robert J. Biggar, Chief Surgeon to the Bahrein Petroleum Company Limited and president of The Bahrein Island Medical Society, the following articles were read:

Report and Personal Interpretation of the International Industrial Congress at London, last September, Dr. A. J. S. Perfect, the Bahrein Petroleum Co. Ltd.

Tuberculosis of the Peritoneum Treated with Streptomycin: Report of Cases, Mr. Allen-Mersh, Kuwait Oil Co., Kuwait.

The Diarrheas Encountered in This Area, Dr. H. H. Golz, Arabian American Oil Co., Dhahran, Saudi Arabia.

External Otitis, Its Etiology and Management, Dr. A. Anderson, Anglo Iranian Oil Co., Abadan, Iran.

Back Pain—Causes and Diagnosis, Dr. Joseph De Lougherty, Arabian American Oil Co., Dhahran, Saudi Arabia.

The Soft Penile Ulcer, Major Wm. C. Marrett Jr., M. C., U. S. Army, Dhahran, Saudi Arabia.

An unusually lively discussion followed each of the speakers, and all of the European, American and Indian doctors were generally interested in drawing on the experiences of one another in dealing with these conditions which are so prevalent around the Persian Gulf.

A motion was made at the end of the meeting that a Persian Gulf Medical Society be formed from which definite committees would be appointed for the study of the problems of the area, certain groups to be assigned one phase of a disease for investigation and final reports to be correlated later. The success of the meeting is evidenced from the fact that plans were made for the meeting to become a semiannual affair.

# Correspondence

## TONSILLECTOMY AND POLIOMYELITIS

*To the Editor:*—In a recent publication (*Laryngoscope* 58: 503, 1948), Dr. D. S. Cunning presented the results of a survey conducted by a committee of the American Laryngological, Rhinological and Otological Society on poliomyelitis and tonsillectomy for the year 1947 and also described the results of a similar survey for 1946. He summed up his conclusions as follows: "I am more than ever convinced that there is no causal relationship between the two, and that when a bulbar poliomyelitis follows a tonsillectomy it is coincidental."

This dangerous conclusion, which I fear is already being widely accepted by otorhinolaryngologists, should be very carefully weighed in the light of the evidence presented by the present report and of other evidence totally disregarded by it.

As regards the Cunning data, the following points deserve consideration. 1. Twenty-four cases of poliomyelitis in the reported series actually did follow tonsillectomy in 1947 and 62 cases in 1946. Of these 6, or 25 per cent, were bulbar in 1947, and 18, or 29 per cent, in 1946, whereas the incidence of bulbar poliomyelitis in all cases of poliomyelitis covered by the survey was 11.6 per cent in 1947 and 15.4 per cent in 1946; that is, the incidence of bulbar forms was slightly more than twice as high in persons for whom tonsillectomy has been done as in those for whom it has not. 2. Since the compilation by Aycock in 1942 (*Medicine* 21: 65, 1942) and the editorial of March 21, 1942 in The Journal (118: 980, 1942), tonsillectomy has come to be generally avoided during epidemics, and to a smaller extent even during the summer and fall months, because of the widespread fear of poliomyelitis that is felt both by physicians and laity; the result of such avoidance would, of course, be to reduce greatly the incidence of post-tonsillectomy cases and thus to increase the proportion of non-post-tonsillectomy cases. 3. The proof of a relationship between tonsillectomy and poliomyelitis is positive in respect to the high proportion of bulbar cases and cannot be blindly disregarded. Thus Aycock's summary shows 170 cases in which poliomyelitis followed tonsillectomy within thirty days (approximately the upper limit of incubation), of which 121, or 71 per cent, were bulbar, whereas in the thirty to sixty day period only 20 per cent were bulbar. The Cunning survey used a sixty day interval, which may explain the lower incidence of bulbar poliomyelitis than in the thirty day reports. The extraordinary report by Krill and Toomey (The Journal 117: 1013, 1941) deserves mention: Five children in one family were subjected to tonsillectomy on the same day, and all came down with bulbar poliomyelitis ten to twelve days later, 3 of them dying of the disease. Since the Aycock compilation, numerous other reports of post-tonsillectomy poliomyelitis have appeared (including the 86 of the two Cunning reports) and the 17 of Anderson's (*J. Pediat.* 27: 68, 1945) paper. The latter particularly should not be disregarded, since it offers clear proofs of the relationship under discussion. Anderson obtained data on tonsillectomies performed in Utah in 1943 both before and during the heavy epidemic of that year. Before (July) the outbreak the incidence of poliomyelitis after tonsillectomy was 0.7 per thousand; in August, when the epidemic began, it was 1.4 per thousand and at the height of the epidemic it was 19.2 per thousand tonsillectomies (these figures have been calculated from the original data). All the post-tonsillectomy cases of poliomyelitis were bulbar. The incidence of poliomyelitis in children in whom tonsillectomy had recently been done was 2.6 times, and of bulbar poliomyelitis 16 times greater than in the general child population.

The Cunning survey is therefore, in my opinion, a dangerous one, particularly since it is in a sense the official report of the American Laryngological, Rhinological and Otological Society and is apt to obtain wide acceptance, at least among specialists in that field, and might lead to the abandonment of what is now generally accepted as an important means of prevention of poliomyelitis. That the author himself still entertains doubts of the correctness of his views is indicated by a remark that follows the conclusion already quoted: "I do not advocate the indiscriminate removal of tonsils during any severe epidemic, and have no desire to place our children's lives in jeopardy through injudicious surgery. . . ." It is to be hoped that this sentiment will continue to be felt by all physicians who are responsible for deciding on tonsillectomy, especially during epidemics of poliomyelitis.

Harold K. Faber, M.D.,
Stanford University Hospital, San Francisco.

## HISTAMINE IN ARTERIOSCLEROSIS OBLITERANS

*To the Editor:*—In the December 4 issue of The Journal, page 1036, Friedell, Drucker and Pickett reported favorably on the treatment of arteriosclerosis obliterans with histidine and ascorbic acid. Good results from this therapy had previously been reported by Wirtschafter and Widmann, who suggested that the effects were due to the elaboration of histamine in vivo.

To test for the presence of significant amounts of circulating histamine, we studied gastric acid secretion following the administration of histidine and ascorbic acid in the doses recommended; gastric acidity was studied because, as shown by Hanson, Grossman and Ivy (*Am. J. Physiol.* 153: 243, 1948), the lowest threshold for definite histamine effect in man is on this function.

In 2 subjects there was no definite increase in the volume or acidity of the gastric juice over a three hour period. Six tests in dogs with gastric pouches also had negative results. We interpret these results to indicate that clinical results following treatment with histidine and ascorbic acid are probably not due to the formation of histamine in the body.

A. Littman, M.D.,
M. I. Grossman, M.D.,
University of Illinois, Chicago.

## BRITISH NATIONAL HEALTH ACT

*To the Editor:*—It is true that the comprehensive health service launched in this country on July 5 has many teething troubles, amongst them the great demand for medical services both in the hospital and in the consulting room. You are entitled to describe as folly the launching of such a service without sufficient personnel and premises. But the statement in The Journal of the American Medical Association of September 25 that "doctors are compelled to write formulas and prescriptions and reports many hours in advance of the time when they see the patients" is untrue. Indeed, it could be described as a libel on a profession which is proud of its traditions of service to its patients. May I ask that there be published in your journal, rightly famed for its scientific standards, an indication of the evidence for such an extraordinary statement?

Charles Hill, M.D., Secretary,
British Medical. Association,
Tavistock Square,
London W. C. 1, England.

Comment.—When this letter was received, a communication was sent to Dr. Charles Hill calling his attention to the fact that the Editor of The Journal had personally visited with general practitioners in England, one of whom had pointed to a pile of forms and who had definitely stated that he had spent two hours of the previous evening preparing these papers for the next day's practice. In reply Dr. Hill stated that he found it necessary to repeat his request for publication of his letter since "an issue of considerable importance to the British medical profession is involved." Since that time a mass of evidence has accumulated in the form of letters sent to the *British Medical Journal*, the London *Lancet* and important British newspapers, in which physicians who are working under the National Health Act have stated repeatedly that the paper work under the act is intolerable. There are so many forms to be filled out for so many different items and for so many different purposes that it is inconceivable that a British physician can carry on a competent medical practice without having the services of another person to do his paper work for him. The Journal expects to publish shortly an analysis of these data. Through the kindness of Dr. Wilson Jameson, who is chief medical officer of the British Ministry of Health, the headquarters of the American Medical Association has accumulated specimens of what appear to be merely a portion of the many forms used under the act.—Ed.

## THE CLINICAL USE OF FLUORESCEIN

*To the Editor:*—With reference to the recent article by Gerald J. Menaker and Morris L. Parker in the Dec. 4, 1948 number of The Journal, page 1039, it is pertinent to point out that many observers are finding a variety of uses for fluorescein in medicine.

Since 1946, fluorescein has been incorporated into several different technics at the University of Minnesota Hospitals. The most valuable among these has been a method of locating subcortical brain lesions. This procedure has been described in detail in the July 1948 issue of *The Journal of Neurosurgery*.

In addition to the use of the dye in the operating room, radioactive diiodofluorescein ($I^{131}$) has been employed in the attempt to locate tumors of the central nervous system preoperatively. This procedure was described in *Science* (107:569 [May 28] 1948) and in *Minnesota Medicine* (31:1073-1076 [Oct.] 1948).

In an attempt to make brain tumors radiopaque, other fluorescein compounds were synthesized. One of these dyes, tetraiodophthalic fluorescein, was rapidly concentrated by the gallbladder after excretion by the liver, which has led to its use in roentgen examination of the biliary tract (Intravenous Cholecystography with Tetraiodophthalic Fluorescein, *Surgery* 24:17 [July] 1948). It was observed that patients with certain types of hepatic disease did not concentrate the radioactive fluorescein in the liver as rapidly as was expected. This has stimulated further investigation along this line to see whether the radiofluorescein uptake of the diseased liver may be correlated with and used as an adjunct with other hepatic function tests. (Sussman, A. H., and Wang, J. C., unpublished data.)

Clinically, fluorescein has the following advantages: Its presence can be detected in minimal concentrations; it has a very low toxicity, and the coloration of the patient's skin is not marked or of long duration. The equipment required consists solely of the dye and a mercury arc lamp equipped with Wood's filter. One disadvantage of this technic is the fact that ultraviolet light penetrates but a fraction of a millimeter of tissue, and therefore its use is limited to direct examination of tissue surfaces and the lumens of organs covered by only a few layers of cells.

It would seem that the possible clinical and investigative uses of fluorescein are increasing rapidly, and will be limited only by the imagination of the investigator.

Samuel W. Hunter, M.D.,
Medical Fellow in Surgery, University of Minnesota
Medical School, Minneapolis.

# Medical Examinations and Licensure

## COMING EXAMINATIONS AND MEETINGS

### NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* Various Centers, Feb., June and Sept. 1949. *Part II.* April 1949. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2, Pa.

### EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology, Inc.: *Written.* July 15. Various locations. Final date for filing application is April 15. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Avenue, New York 27.

American Board of Dermatology and Syphilology: *Written.* Various Centers, Feb. 17. *Oral.* New York City, April 1-3. Sec., Dr. George M. Lewis, 66 East 66th Street, New York 21.

American Board of Internal Medicine: *Oral.* San Francisco, Feb. 8-10, 1949. New York City, March 23-25. Philadelphia, June 1-3. *Written.* Oct. 17, 1949. Final date for filing application is May 1. Asst. Sec.-Treas., Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

American Board of Obstetrics and Gynecology, Inc.: *Oral.* Chicago, May 8-14. Final date for filing application is April 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

American Board of Ophthalmology: *Written.* Jan. 14. *Oral.* San Francisco, March 21-24; New York, June 11-15; St. Louis, Oct. 15-19; Boston, Dec. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

American Board of Orthopedic Surgery: *Part I.* Various Centers, April and May. Sec., Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

American Board of Otolaryngology: New York, May 11-14. Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

American Board of Pathology: Boston, April. Final date for filing application is March 1. Sec., Dr. Robert A. Moore, 507 S. Euclid Ave., St. Louis 10, Mo.

American Board of Pediatrics: *Oral.* St. Louis, Feb. 18-20. Baltimore, May 7-9. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

American Board of Physical Medicine: Atlantic City, June 4-5. Final date for filing application is March 15. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

American Board of Plastic Surgery: Examinations are given in June and November of each year in the home town of applicants. Sec.-Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

American Board of Psychiatry and Neurology: *Oral.* May. Final date for filing application is Feb. 15. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written.* Various Centers, March 1949 Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

American Board of Urology: Feb. 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

### BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

Alaska:* Juneau, March 1. Sec.-Treas., Dr. W. M. Whitehead, Box 140, Juneau.

Arkansas:* Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

California: *Examination,* Los Angeles, Feb. 28-March 3. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

Connecticut:* Hartford, March 8-9. Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

District of Columbia:* *Reciprocity,* Washington, March 14. Sec., Dr. George C. Ruhland, 4130 Municipal Building, Washington.

Florida:* *Examination,* Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

Georgia: *Examination.* June, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Guam: *Endorsement.* Agana, Last Friday of each month. Sec., Capt C. K. Youngkin, Dept. of Public Health, Guam, % F.P.O. San Francisco. Calif.

Indiana: *Examination.* Indianapolis, June. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

Maine: Portland, March 8-9. Sec., Dr. Adam P. Leighton, 192 State Street, Portland.

Maryland: *Examination,* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, *1215 Cathedral St., Baltimore.*

Massachusetts: *Examination.* Boston, March 8-11. Sec., Dr. George L. *Schadt, 413 E. State House, Boston.*

Mississippi: Jackson, June. Asst. Sec., Dr. R. N. Whitfield, State *Board of Health, Jackson.*

Missouri: Kansas City, Jan. 24-26. Sec., Mr. John A. Hailey, State Capitol Bldg., Box 4, Jefferson City.

Montana: Helena, April 4-6. Sec., Dr. O. G. Klein, First National Bank Building, Helena.

Nebraska:* *Examination.* Omaha, June. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

Nevada: Carson City, May 2. Sec., Dr. G. H. Ross, 112 *N. Curry* Street, Carson City.

New Hampshire: Concord, *March 10.* Sec., *Board of Registration* in Medicine, Dr. *John* S. Wheeler, *107* State House, Concord.

New Jersey: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

New Mexico: Santa Fe, April 11-12. Sec., Dr. V. E. Berchtold, 141 Palace Ave., Santa Fe.

New York: *Examination.* Various Centers, Feb. 1-4. Sec., Dr. J. L. Lochner, Jr., 23 S. Pearl St., Education Bldg., Albany.

Ohio: *Endorsement.* Columbus, Jan. 25 and April 5. *Written.* Columbus, June. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Puerto Rico: *Examination.* Santurce, March 1. Sec., Mr. Luis Cueto Coll, *Box 3717.* Santurce.

South Carolina: Columbia, June 27-29. Sec., Dr. N. B. Heyward, *1329 Blanding St.,* Columbia.

Texas: *Examination.* Austin, *June 16-18.* Sec., *Dr.* M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

Utah: *Examination.* Salt Lake City, July. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

Vermont: *Examination.* Burlington, Feb. 3-5. Sec., Dr. F. J. Lawliss, Richford.

Wyoming: *Examination.* Cheyenne, Feb. 7. Sec., Dr. Franklin D. Yoder, Cheyenne.

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* Basic Science Certificate required.

### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: Juneau, Feb. 21-26. Sec.-Treas., Dr. C. Earl Albrecht, Box 1731, Juneau.

Colorado: *Examination.* Denver, Mar. 2-3. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

Connecticut: New Haven, Feb. 12. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

District of Columbia: *Examination.* Washington, April 18-19. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., East, Washington.

Florida: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

Minnesota: *Examination.* April, June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

Oklahoma: Spring of 1949. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: Portland, March 5 and June 18. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

Rhode Island: *Examination.* Providence, Feb. 9. Chief, Mr. Thomas B. Casey, 366 State Office Building, Providence.

South Dakota: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.

Tennessee: Memphis, March 21-22. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

Wisconsin: Madison, April 2., Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College, Ripon.

# Bureau of Legal Medicine and Legislation

## MEDICOLEGAL ABSTRACTS

**Governmental Hospitals: Validity of Rules Fixing Standards for Practitioners Therein.**—The plaintiff physician filed suit to restrain the defendant hospital from interfering with, or discriminating against, him in his right to practice and perform his professional duties in the hospital. From a judgment for the physician, the hospital appealed to the appellate court of Indiana.

On or about Sept. 9, 1947, the board of trustees of the Hamilton County Hospital adopted certain rules regulating the qualifications which a physician must possess in order to practice medicine, surgery and obstetrics in the hospital. Among others, it was provided that "the Resident Active Medical Staff, which shall include all the physicians having an unlimited license to practice medicine in the State of Indiana and having membership in Hamilton County professional organization of fully licensed physicians having the largest number of such physicians residing in Hamilton County" shall make up the membership of the Active Medical Staff of the hospital. Other rules provided that in order for a physician to practice in the hospital he either must be a member of this medical staff or must have a member of the medical staff associated with him in the treatment of his patient. The rules then went on to set forth the requirements of a surgeon desiring to practice surgery in the hospital but not being a member of the surgical staff as of March 1, 1947, as the defendant was not. Among other things, such a surgeon was required to "(*b*) have a certificate of internship showing one year service as an intern in a hospital approved by the Council of Medical Education and Hospitals of the American Medical Association. (*c*) In addition to intern training required under (*b*) he shall have had not less than three years of surgical training which meets the approval of the American College of Surgeons."

The plaintiff graduated from Indiana University School of Medicine in 1938 and practiced medicine in the state of Indiana from that time until June 1942, when he entered the army. While in the service he had a one month postgraduate course at Harvard University in general surgery and a three months' course in maxillofacial and plastic surgery at Columbia University. Later he was stationed in a 1,750 bed hospital at Camp Knox, where he served about three months in orthopedics, postoperative care, obstetrics, gyniatrics and general medicine. He was placed on the army inactive list in January 1945 and shortly thereafter opened an office in Louisville, where he was denied admission to the medical society and denied the right to practice in three of the Louisville hospitals. He testified that he had performed over three hundred major operations during his practice with 4 deaths. He admitted that he had never had any official intern training but expressed the opinion that his experience in the practice was far in excess of a year in intern training.

The plaintiff became a resident of Noblesville, Ind., about Jan. 1, 1947, and shortly thereafter applied for membership in the Hamilton County Medical Society, the organization referred to in the aforementioned rules. About Sept. 19, 1947, he was informed that his application for membership had been denied, and accordingly the hospital refused to permit him to treat his patients in it except in accordance with the provisions of the rules relating to having another physician on the staff associated with him.

It is undisputed, said the court, that the hospital would not permit the plaintiff to practice his profession in it except in accordance with the rules adopted. There was no evidence that these rules were unreasonable, arbitrary or unlawful. Nor was there any evidence to indicate that the Hamilton County Medical Society acted unlawfully, arbitrarily or capriciously in denying the plaintiff's application for membership nor that the society or the hospital were engaged in a conspiracy to prevent the plaintiff from engaging in the practice of his profession. There was, on the other hand, undisputed evidence from a number of physicians, surgeons and hospital authorities that these rules were reasonable and generally regarded as necessary to the proper conduct of hospitals; that such rules would be necessary for the protection of the public against the untrained surgeon who might undertake surgical services beyond his ability to perform. There was also evidence indicating the necessity of and the kind of special training generally required before a person is qualified or permitted to practice surgery. In the view we take of this case, the court of appeals continued, it is only necessary for us to determine whether or not these rules unlawfully and arbitrarily discriminated against the plaintiff.

The plaintiff contended that because of the provisions of section 22-3232, Burns' 1933 relating to county hospitals, the defendant hospital was prohibited from adopting the rules in question. This section provides:

> In the management of such public hospital, no discrimination shall be made against practitioners of any school of medicine recognized by the laws of Indiana, and all such legal practitioners shall have equal privileges in treating patients in said hospital. The patient shall have the absolute right to employ, at his or her own expense, his or her own physician, and, when acting for any patient in such hospital, the physician employed by such patient shall have exclusive charge of the care and treatment of such patient, and nurses therein shall, as to such patient, be subject to the directions of such physician; subject always to such general rules and regulations as shall be established by the board of trustees under the provisions of this act.

It seems clear to us, said the court, that this section provides, first, that there may be no discrimination against the practitioner of any school of medicine recognized by the laws of this state; second, that the patient shall have the right to employ his or her physician and such physician shall have the exclusive charge of the care and treatment of the patient, subject, however, to the general rules established by the board of trustees under the act authorizing the establishment of county hospitals. Section 10 of such act provides:

> Every hospital established under this act shall be for the benefit of the inhabitants of such county and of any person falling sick or being injured or maimed within its limits; . . . such hospital always being subject to such reasonable rules and regulations as said board may adopt in order to render the use of said hospital of the greatest benefit to the greatest number; and said board may exclude from the use of such hospital any and all inhabitants and persons who shall wilfully violate such rules and regulations. . . .

We are of the opinion, the court of appeals concluded, that this section provides ample authority for the adoption of the rules questioned by the plaintiff. In fact we are inclined to believe it places an obligation on such a board of trustees as the defendant to adopt reasonable rules and regulations to protect the public generally from unethical, unskilled and unscrupulous practitioners. Accordingly the judgment of the trial court in favor of the plaintiff physician was reversed.—*Hamilton County Hospital v. Andrews, 81 N. E. (2d) 699 (Ind., 1948).*

# Current Medical Literature

## AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted.

### American J. Digestive Diseases, Fort Wayne, Ind.

**15**:289-320 (Sept.) 1948

Treatment of Obesity. M. Goldzieher.—p. 289.

Small Intestinal Deficiency Pattern: Current Status. W. H. Glass. —p. 294.

Steatorrhea in Diabetes Mellitus. H. Field Jr., N. C. Klendshoj and B. D. Bowen.—p. 298.

Influence of Ascorbic Acid, Sodium Ascorbate, Calcium Ascorbate and Orange Juice on Dental Enamel. S. L. Ruskin, Alice T. Merrill and O. Ruskin.—p. 302.

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### American Journal of Medical Sciences, Philadelphia

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Electrolyte Changes in Nephrosis: Occurrence of Diuresis Following Administration of Sodium and Potassium Salts. C. L. Fox Jr. and D. J. McCune.—p. 1.

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Ecchymosis of Abdominal Wall as Early Diagnostic Sign of Dissecting Aneurysm of Aorta. R. Green and O. Saphir.—p. 24.

*Clinical Use of Triple Sulfonamide Mixture. J. H. Ledbetter and G. E. Cronheim.—p. 27.

*Cholesterol Metabolism:: Blood Serum Cholesterol and Ester Levels in 200 Cases of Acute Coronary Thrombosis. L. M. Morrison, Lillian Hall and A. L. Chaney.—p. 32.

Pheochromocytoma of Adrenal Medulla: Study of 5 Cases. S. D. Spatt and D. M. Grayzel.—p. 39.

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Survey of Treatment of Pernicious Anemia in Relapse: (A) Comparison of Hematopoietic Response to Liver Extract and Folic Acid (L-Casei Factor). (B) Limitations of Reticulocyte Response as Measure of Anti-Pernicious Anemia Potency. G. W. Clark.—p. 71.

Severe Paroxysmal Cardiac Pain as Prodrome in Idiopathic Epilepsy. J. W. Fischer.—p. 78.

Dynamics of Hypoglycemic Reaction. M. Fabrykant and M. Bruger. —p. 84.

Psychotherapy: Orientation for Non-Psychiatrists. C. E. Stanfield. —p. 97.

**Clinical Use of Triple Sulfonamide Mixture.**—Ledbetter and Cronheim say that the main interest in multiple sulfonamide therapy has centered around the reduction of renal complications, particularly crystalluria. The latter was present in 26 to 28 per cent when administering sulfadiazine or sulfamerazine alone. It can be reduced to 6 per cent when a combination of two drugs, sulfadiazine and sulfamerazine, is used, and it can be further reduced to below 3 per cent when adequate amounts of systemic alkalizers are added. The authors have extended their investigation of multiple sulfonamide therapy to the use of a mixture consisting of sulfadiazine, sulfamerazine and sulfathiazole without alkalizing salts. The preparation was composed of: sulfadiazine (microcrystalline), 3.5 per cent (weight/volume); sulfamerazine (microcrystalline), 3 per cent, and sulfathiazole (microcrystalline), 3.5 per cent, in an aromatized aqueous suspension base. The preparation was given to 28 selected patients mostly patients undergoing surgical treatment who required sulfonamide therapy. The initial dose was from 20 to 40 cc., representing from 2 to 4 Gm. of total sulfonamide drugs followed by 10 cc., equivalent to 1 Gm., of total sulfonamide drugs every four hours. With this dose adequate blood levels were maintained. The incidence of crystalluria was extremely low even though no alkali was administered. In no case was it necessary to discontinue drug treatment. The acetylation of the sulfonamide compounds in both blood and urine seems to be noticeably reduced.

**Cholesterol Metabolism in Coronary Thrombosis.**—According to Morrison and his associates the role of fat in the diet has recently aroused widespread interest as to its effect in producing atherosclerosis, arteriosclerosis and coronary artery disease. Contradictory reports exist. Some investigators report hypercholesteremia in these diseases and others report normal blood cholesterol levels. The authors believe that these discrepancies may be accounted for by differences in technical procedures, sex and age variations, uncontrolled dietary habits during the study and clinical diagnosis of the disease subject to variability in interpretations. The authors studied a consecutive unselected series of 200 patients with acute coronary occlusion for blood cholesterol and cholesterol ester levels within forty-eight hours after hospital admission. In 68 per cent of 73 patients under 60 years of age with proved acute coronary occlusion hypercholesterolemia was present. In 52 per cent of 125 patients over 60 years of age with proved acute coronary occlusion a normal cholesterol level was found. The authors conclude that coronary thrombosis in patients under the age of 60 is frequently associated with hypercholesterolemia and disturbances of cholesterol metabolism.

**Amyloidosis in Rheumatoid Arthritis.**—Unger and his associates point out that amyloidosis complicating rheumatoid arthritis was considered uncommon, but that there is reason to believe that the two conditions coexist more frequently. The fact that simultaneous occurrence was usually discovered at necropsy indicates a lack of awareness of the association. The authors examined the records of 58 patients with rheumatoid arthritis who came to necropsy. There were 4 cases in which amyloidosis could not be attributed to causes other than rheumatoid arthritis. Despite the presence of suggestive clinical evidence of amyloidosis, the Congo red test had not been performed in these cases, since the diagnosis was not suspected ante mortem. The postmortem examination showed amyloidosis of varying severity and distribution, involving liver, spleen and kidney in every case and, in addition, in 1 case the adrenals, pancreas and heart. The authors searched for amyloidosis among 56 living patients with rheumatoid arthritis and found it in 6. Five of the 6 showed Congo red absorption ranging from 86 to 100 per cent one hour after injection. In the remaining case, 81 per cent of the injected dye was removed after one hour. It appears certain that amyloidosis was secondary to rheumatoid arthritis in 5 of the 6 cases. Albuminuria of varying degree was present in all of the patients. Of great interest was the low serum amino acid levels in all living patients. Earlier recognition of amyloidosis would permit testing the efficacy of the recently recommended therapeutic regimen of desiccated whole liver powder.

### American Journal of Medicine, New York

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Study of Specialized Heart Tissue at Various Stages of Development of Human Fetal Heart. Jane S. Robb, C. T. Kaylor and W. G. Turman. —p. 324.

**Abnormal Electrocardiograms in Absence of Demonstrable Heart Disease.* D. Littmann.—p. 337.

Asymptomatic Heart Disease: Observations Made During the Early Recruiting Period for Navy and Marine Enlistments. A. S. Hyman. —p. 351.

*Significance of Electrocardiographic Changes in Rheumatic Fever. M. Sokolow.—p. 365.

Oxygen Therapy in Acute Rheumatic Carditis in Children. L. M. Taran *and Nelly Szilagyi.—p. 379.*

Effect of Oxygen Therapy on Electrical Sequence of Events in the Cardiac Cycle in Children with Acute Rheumatic Carditis. L. M. Taran and Nelly Szilagyi.—p. 392.

Treatment of Pneumococcal Meningitis. G. W. Waring Jr. and L. Weinstein.—p. 402.

**Abnormal Electrocardiograms in Absence of Heart Disease.**—Littmann describes 9 instances of gross electrocardiographic abnormalities, largely concerned with precordial T waves, in persons without demonstrable heart disease. They were found over a period of approximately eighteen months during which time some 5,000 electrocardiograms were read. With 1 exception, these persons had no complaints referable to the heart. In that case the symptoms were considered to be due to cardiac neurosis and aerophagia. Essentially normal curves were eventually obtained in most of the subjects. The cause for the anomalies was demonstrated in several of the patients but remained obscure in the remainder. Littmann suggests that when abnormal curves are encountered without adequate support of additional findings, the following extensions of electrocardiographic technic should be made: (1) electrocardiograms with multiple chest leads employing the several standard indifferent points; (2) tracings recorded with the patient in various positions; (3) tracings made at various hours of the day, before and after meals; (4) curves obtained before and after exercise, and (5) serial tracings made over a period of weeks or months.

**Electrocardiographic Changes in Rheumatic Fever.**—On the basis of illustrative cases Sokolow presents a critical appraisal of the value and limitation of electrocardiography in the diagnosis of rheumatic carditis. Cardiac enlargement, pericarditis, cardiac failure, diastolic murmurs and unequivocally significant systolic murmurs are relatively infrequent in young adults with rheumatic fever, but abnormalities in the electrocardiogram are the most frequent criteria of carditis. The most common abnormality in the electrocardiogram in rheumatic fever is a partial auriculoventricular block. This is present in 60 per cent of patients who show electrocardiographic abnormalities. Inversion of $T_1$, $T_2$ or $T_4$, alone or in combination, represents the second most frequent abnormality, being found in 35 per cent of those patients in whom electrocardiographic abnormalities are present. Abnormalities in the electrocardiogram other than conduction defects, S-T and T wave changes and major arrhythmias occur. Care must be exercised before interpreting them as indicative of active carditis when they are present as the only abnormal electrocardiographic finding in a single tracing. Serial tests may permit proper interpretation. The electrocardiogram may reveal the polycyclic nature of the course of rheumatic fever in the absence of clinical evidence of polycyclic activity. This indicates the necessity of taking electrocardiograms early and frequently. Abnormalities in the electrocardiogram may indicate reactivation of the rheumatic process during convalescence when the patient is first allowed some physical activity. It is possible also that carditis presents clinical manifestations and yet presents no electrocardiographic abnormalities.

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Phenomena of Disease in Rabbits Fed Cholesterol and Infected with Treponema Pallidum: Progress Report. C. N. Frazier, C. D. Boyd, E. Grunwaldt and others.—p. 480.
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Gumma of Skeletal Muscle: Report of Case. R. R. Kierland and L. J. Underwood.—p. 491.

**Treatment of Pregnant Syphilitic Women.**—Goodwin and Farber observed 363 women with varying types of syphilitic infection of three months' to forty years' duration who previously received metal chemotherapy through 570 subsequent pregnancies in which further antisyphilitic treatment was purposely omitted. Twenty-two women, all of whom were originally treated with penicillin for early syphilis, were observed through 26 subsequent pregnancies in which further antisyphilitic treatment was purposely omitted. Of the 596 infants born of these pregnancies during which the mothers were not treated, 548 (92 per cent) were born alive. Twenty of the 48 infants stillborn or miscarried were examined at necropsy. Evidence of syphilis in the fetus was found in none. Of the 548 infants born alive 458 were followed for more than two months after birth; 257 were followed for more than a year and 141 for more than three years. All of these children are normal and nonsyphilitic. These data indicate that it is not necessary to administer antisyphilitic treatment to a syphilitic woman during every pregnancy and that there is a high degree of probability that the infant will be normal if maternal treatment is withheld, provided that the mother has previously received 4.0 Gm. or more of arsphenamine together with concomitant bismuth compound, or 2,400,000 units or more of penicillin, that she shows no clinical signs of active syphilitic infection and that her blood serologic tests for syphilis are negative in result or, if still seropositive, in low titer only (1 to 8 dilution units). A syphilitic woman should be further treated in any pregnancy in which she herself shows clinical evidence of active syphilitic infection or in which, in the absence of such evidence, she herself has a positive blood serologic reaction for syphilis in a quantitative titer of 16 or more dilution units.

**Procaine Penicillin G in Gonorrhea.**—Tucker and his co-workers treated 39 men and 11 women with uncomplicated acute gonococcic cervicitis or urethritis by single intramuscular gravimetric injections of crystalline procaine penicillin G in sesame oil containing either 100, 125, 175, 250 or 500 units (0.1 to 0.5 mg.) per kilogram of body weight. Serums and urine specimens were taken at appropriate intervals and assayed for penicillin activity. Cultures and smears for Neisseria gonorrheae were obtained before treatment and three, six, twenty-four and forty-eight hours after the injection. Patients clinically well and bacteriologically negative at the forty-eight hour period were considered cured. Serum concentrations of penicillin G were proportional to the dosages given one hour after treatment and subsequently. Percentage cumulative recovery of penicillin, in the urine was approximately the same over the 2.5 fold dosage range studied. A dosage of 100 units per kilogram failed consistently to cure. The amount of procaine penicillin G which cured one half the patients treated was approximately 175 units per kilogram. All patients who were given 250 units per kilogram of body weight attained clinical and bacteriologic cure by the forty-eighth hour. Since the entire range from cure to obvious clinical failure embraced only a 2.5 fold increase in dosage and since the practicing physician or clinic director is not interested in the "minimal curative dosage" but in the smallest dosage which may be relied on to cure consistently uncomplicated acute gonorrhea, a routine therapeutic dosage of 0.5 mg. per kilogram may be recommended. For the average adult this would represent approximately 0.12 cc. of the 300,000 units per cubic centimeter concentration of procaine penicillin G.

**Treatment of Neurosyphilis with Malaria and Penicillin.**—Kierland and his co-workers treated 76 patients, 59 men and 17 women, the majority of whom were aged 40 or more, who had severe neurosyphilis, with a combined course of malaria and penicillin. Spinal fluid examinations reveal that 40 of the 76 patients had the most active and abnormal fluids before treatment, while 1 patient was classified similarly when last examined. "Arrested" type of spinal fluids was observed in 4 patients before malaria-penicillin treatment, while 48 patients had similar findings after treatment. Sixty-seven patients had minimal abnormalities, arrested condition or normal fluids after treatment. In general a higher percentage of paretic patients had abnormal reactions following treatment than of any other group. Three patients had a relapse in the cell count after an initial return to normal. The clinical response was satisfactory in 44 of the 63 patients who had symptomatic neurosyphilis before treatment, and 4 of these 63 patients were clinically worse than before treatment. Only 3 of 7 patients with symptomatic optic atrophy had some improvement of vision, while 28 of 35 patients with symptomatic paresis and taboparesis had satisfactory clinical responses. The lapse of time seemed to improve the clinical results. Part of this apparent improvement with longer period of observation after treatment is due to the selection of some cases earlier for further treatment because of incomplete response to initial therapy. Combination of malaria and penicillin is the treatment of choice in severe parenchymatous types of neurosyphilis. Patients with the milder forms of neurosyphilis, such as asymptomatic and meningeal syphilis, may first be given the advantage of one or two courses of penicillin alone.

### American Journal of Tropical Medicine, Baltimore

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### American Review of Tuberculosis, New York

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*Complete Community Survey for Tuberculosis. Second Report on Effectiveness of Procedure as Method of Tuberculosis Control. R. Davies, G. A. Hedberg and M. Fischer.—p. 77.
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Subeffective Dose of Streptomycin in Experimental Tuberculosis of Guinea Pigs. A. G. Karlson and W. H. Feldman.—p. 129.
Pneumoperitoneum. K. S. Howlett Jr.—p. 134.

**Streptomycin Treatment of Tuberculous Sinuses.**—Brock treated 12 patients with a total of sixty draining cutaneous tuberculous sinuses by intramuscular administration of 1.8 Gm. of streptomycin daily in divided doses of 0.3 Gm. every four hours. Six of the patients received treatment for ninety days; the remainder were treated for one hundred and fifty days with an interruption of three weeks after the first ninety days. Headache and dizziness were observed rather regularly; 3 patients had a febrile reaction shortly after the administration of the drug and 4 patients showed eosinophilia (over 5 per cent) which persisted throughout the treatment. None of these toxic reactions was severe enough to justify discontinuance of the drug. Soon after the start of the treatment 11 of the 12 patients showed clinical signs of improvement manifested by a sense of well-being, increase in appetite and gain in weight. Nine of the sixty sinuses closed within one to four weeks, and nine within six to eight weeks, after streptomycin therapy was started. Thirty sinuses closed between the tenth and the twelfth week of treatment and 11 closed within thirteen to twenty weeks of the start of treatment. Closure was more prompt when free drainage was present. Of the sixty original draining sinuses only one continues to drain eight months since streptomycin was started, but even this sinus is showing definite improvement. The series has not been followed for a sufficient period to determine whether streptomycin has produced a permanent closure of the sinuses, but the promptness with which they healed following initiation of treatment was outstanding.

**Community Survey on Tuberculosis Morbidity.**—Davies and his co-workers made a complete community roentgenologic survey for tuberculosis in Ely, Minn., a village of approximately 6,000 persons, and the surrounding rural area in 1943. Of the 5,672 persons with roentgenograms of the chest which were considered negative for reinfection type tuberculosis in 1943, 4,206 were reexamined in 1946 and were again found to have negative roentgenograms. No one in Ely the roentgenogram of whose chest was negative for reinfection tuberculosis in 1943 has been demonstrated to have contracted the disease since. One hundred and eight (72 per cent) of the 149 persons who had evidence of apparently inactive tuberculosis in 1943 were reexamined in 1946 and showed no significant change in the observations. The fact that, of the 41 persons not reexamined in 1946, 15 had had recent satisfactory roentgenograms of the chest, 11 had moved away from the community and only 9 who remained in the community were not reexamined, chiefly because they were uncooperative, is a rough measure of the adequacy of the follow-up program. Fourteen persons were classified as having had active or suspected active tuberculosis in 1943. In the 1946 survey, 6 persons (0.09 per cent of the population) were classified as having active or suspected active tuberculosis. The survey, which included examination of a high percentage of the population, hospitalization of patients with active disease and adequate follow-up examination of those with apparently inactive disease, has been followed by a sharp drop in the incidence of new cases of tuberculosis. This is the second time such a result has been demonstrated. A community survey of this type is a practicable method of tuberculosis control. In the community studied, most cases of clinical pulmonary tuberculosis which have occurred in recent years have apparently been the result of recent exogenous infection.

**Pathology of Reinfection.**—Pagel and Toussaint define reinfection as a tuberculous infection occurring in a person in whom a previous primary infection is anatomically healed. In the diagnosis of reinfection in tuberculosis sources of error may arise. Four cases of apparently recent changes of endogenous origin from an obsolete lesion in 2 male and 2 female patients between the ages of 6½ and 54 years are reported, illustrating the fallacy of the argument that obsolescence and ossification exclude a lesion as the original source of still fresh and progressive tuberculous changes. Three cases of long persistence of the "soft state" of the focus at the site of entry of the tubercle bacilli or of the homologous caseous focus in the regional lymph nodes or in both constituents of the primary complex in 3 women and 1 man between the ages of 17 and 43 are reported which demonstrate that decided differences in quality between two foci—firmly calcified as against caseous—do not exclude their being closely related to each other; these differences do not provide evidence in themselves that the fresh looking lesion is due to new infection from without. Consequently, delayed calcification of both parts or synchronous calcification of one constituent of the primary complex may be another sourse of erroneous diagnosis. One case in a man aged 25 is presented in which a cavity healed at the time of observation after having given rise to bronchogenic phthisis. The clinical and postmortem roentgenograms closely simulated reinfection, which was only disproved by microscopic examination of the hilar lymph nodes.

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Changing Concepts of Disease. K. Menninger.—p. 318.
Animal Kingdom, Reservoir of Human Disease. K. F. Meyer.—p. 326.

**Urinary Excretion of Radioactive Iodine in Hyperthyroidism.**—McArthur and her associates attempted to evaluate the clinical usefulness of the measurement of radioactive iodine excretion by defining more precisely the range of excretion to be anticipated in nonthyrotoxic persons and in patients with hyperthyroidism. Tracer doses (2 to 160 micrograms) of sodium iodide labeled with radioactive iodine ($I^{131}$) the specific activity of which varied from 50 to 2,000 microcuries (in the majority of instances the activity was 100 microcuries) were administered orally to patients. Urine was collected for forty-eight hours following the administration of the labeled iodine, and the percentage excretion determined from the specific activity of an aliquot. The mean urinary excretion of radioactive iodine by 22 thyrotoxic patients was 25 per cent, range 7 per cent to 45 per cent. The mean urinary excretion of radioactive iodine by 30 nonthyrotoxic patients was 60 per cent, range 23 per cent to 98 per cent. There is considerable overlapping in the radioactive iodine excretion between thyrotoxic and nonthyrotoxic persons in the range 20 to 40 per cent. The finding of a low urinary excretion of radioactive iodine aided in establishing the diagnosis of Graves' disease in clinically equivocal cases. The finding of a high urinary excretion of radioactive iodine was of assistance in excluding Graves' disease in borderline cases in which a truly basal metabolic rate could not be obtained. Specifically, the exclusion of Graves' disease has been facilitated in patients exhibiting hypermetabolism due to alcoholism, anxiety, compensated hypertensive cardiovascular disease, parkinsonism, pheochromocytoma and thyrotoxicosis factitia. In that group of patients exhibiting an intermediate (20 to 40 per cent) excretion of radioactive iodine, the diagnosis of Graves' disease must be established by other clinical and laboratory findings. Search for external gamma radiation with the Geiger-Müller counter following the administration of a tracer dose of radioactive iodine enables the location of thyroid tissue to be established when doubt exists.

**Pathogenesis of Human Brucellosis.**—According to Spink there are indications that brucellosis is on the increase both in domestic animals and in human beings. Human brucellosis is a major problem in public health in some sections of this country. The reservoir of the disease resides in domestic animals, especially cattle, swine and goats. The disease is transmitted either directly or indirectly to human beings from infected animals, and rarely, if at all, from human being to human being. Intracellular parasitism results from the invasion of tissues by Brucella resulting in the characteristic, but not specific, tissue reaction of proliferation of epithelioid cells and giant cells. Complications include destructive osseous lesions, subacute bacterial endocarditis, encephalitis and grossly suppurative lesions. Hypersensitivity of the tissues to an antigen or antigens of Brucella is a constant feature of brucellosis, and the symptom complex of the disease may depend, in part at least, on this state of hypersensitivity. The most satisfactory treatment to date for both acute and chronic cases of brucellosis is a combination of streptomycin and sulfadiazine. Thus far, 17 patients have been treated with a maximum follow-up period of one year. The clinical course of brucellosis is shortened by this combined therapy. The combination is effective against such complications of brucellosis as subacute bacterial endocarditis and spondylitis. Optimum doses remain to be worked out, but at present it is recommended that 0.5 Gm. streptomycin be given intramuscularly every six hours for two weeks. At the same time that therapy with streptomycin is started, 3 to 4 Gm. of sulfadiazine should be administered orally, and then 1 Gm. every four hours for a total of two weeks. The ultimate elimination of human brucellosis depends on eradicating the disease from domestic animals.

**Acute Mercury Poisoning.**—Batson and Peterson present the history of a patient with severe mercury poisoning who was treated with BAL (2,3-dimercaptopropanol) and whose prolonged anuria was combated successfully by peritoneal irrigation. BAL should be administered immediately, preferably in the emergency room or home, to patients who are suspected of *having ingested bichloride of mercury. The initial injection* should be 3.5 to 4.5 mg. per kilogram of body weight followed in two hours by 2 to 3 mg. per kilogram and at intervals of six hours by four additional doses of 2 to 3 mg. per kilogram. *Thereafter one should administer 2 to 3 mg. per kilogram* twice daily until all evidence of poisoning has disappeared. Gastric lavage should be carried out immediately. Four per cent *sodium bicarbonate solution is probably as effective as any other solution in the removal of excess mercury.* Colonic flushings should be done approximately twice daily. In cases of severe poisoning every effort should be made to prevent shock. This requires administration of whole blood, plasma and crystalloid solutions. The fluid and electrolyte balance should be maintained and dehydration or edema should be prevented. Frequent determinations of blood nonprotein nitrogen, plasma carbon dioxide–combining power, plasma proteins, plasma chloride and hemoglobin are necessary in adjusting the regimen. In patients who are anuric, peritoneal irrigation may effectively remove metabolic wastes until renal function returns.

## Annals of Surgery, Philadelphia

### **128**:161-320 (Aug.) 1948

Causalgia Following Gunshot Injuries of Nerves: Role of Emotional Stimuli and Surgical Cure Through Interruption of Diencephalic Efferent Discharge by Sympathectomy. J. C. White, W. W. Heroy and E. N. Goodman.—p. 161.
Effect of Vagotomy and of Drugs on Gastric Motility. R. W. Postlethwait, H. V. Hill Jr., J. R. Chittum and K. S. Grimson.—p. 184.
*Pure Serum Albumin Compared with Citrated Plasma in Therapy of Chronic Hypoalbuminemia. R. Elman, F. J. Kelly and D. H. Simonsen.—p. 195.
*Strangulated Diaphragmatic Hernia. B. N. Carter and J. Giuseffi.—p. 210.
Reconstruction of External Ear. H. Conway, C. G. Neuman, J. Gelb and others.—p. 226.
Choledochus Cyst: Case Report with Brief Comment. C. E. Davis Jr.—p. 240.
Internal Hernia with Strangulation of Bowel Due to Defect in Falciform Ligament. J. Gaster.—p. 248.
Acute Torsion of Gallbladder. F. X. Haines and J. T. Kane.—p. 253.
Saddle Embolus of Aorta: Report of Successful Embolectomy. J. L. Keeley.—p. 257.
Histochemistry of Burned Human Skin with Note on Base Exchange in Traumatized Tissue. F. D. Moore, R. D. Evans and Margaret R. Ball.—p. 266.
Polypoid Adenomatosis of Entire Gastro-Intestinal Tract. M. M. Ravitch.—p. 283.
Tumor of Small Intestine: Miller-Abbott Tube Determines Site of Massive Hemorrhage. J. B. Stewart.—p. 299.
Recurrent Primary Thrombocytopenic Purpura with Accessory Spleens: Review of Literature. P. Thorek, R. Gradman and J. S. Welch.—p. 304.
Streptomycin in Surgical Infections. Part VI. Lung Abscess and Empyema. E. J. Pulaski and T. T. White.—p. 312.

**Pure Serum Albumin or Plasma in Chronic Hypoalbuminemia.**—Comparable injections of twice concentrated plasma and of 25 per cent salt-poor human albumin were studied by Elman and his associates in 22 patients with various diseases having in common malnutrition and hypoalbuminemia. Both solutions caused an immediate and similar increase in albumin concentration, in total circulating albumin and in plasma volume. However, significant differences were apparent within twenty-four hours. The concentration of albumin was more sustained with the solution of pure albumin than with plasma. Pure albumin produced no increase in venous pressure, whereas plasma did, particularly when a reaction occurred. No reactions occurred with albumin in contrast to their frequency with plasma. The pure albumin solution was more effective than plasma in inducing diuresis with weight loss and relief of edema. Solutions of 25 per cent salt-poor albumin would seem to be far superior to plasma in the treatment of nutritional hypoalbuminemia.

**Strangulated Diaphragmatic Hernia.**—Carter and Giuseffi had their attention drawn to strangulated diaphragmatic hernia by observations on 2 cases observed within one year. They were able to collect 39 cases of strangulated diaphragmatic hernia, to which they added 4 cases from the Cincinnati General Hospital. Diaphragmatic hernias have been classified as congenital, acquired and traumatic types. *Strangulation is most frequent* in the traumatic type. Of the 43 cases with strangulation 34 were traumatic. Traumatic diaphragmatic hernia showed an increased incidence during and immediately after the first world war, *and will undoubtedly show a similar tendency after the* recent conflict. The following should suggest the diagnosis of a strangulated diaphragmatic hernia: (1) signs of acute gastrointestinal obstruction; (2) a history of an old injury; *(3) physical findings referable to the left side of the thorax,* particularly cardiac shift to the right and, on occasion, bloody fluid on aspiration, and (4) roentgenologic evidence of a high *left diaphragm. The treatment of strangulated diaphragmatic hernia is emergency surgery.* The advisability of utilizing the transthoracic route is emphasized. Such an approach is especially suited for small hernias since it allows the operator to investigate the diaphragm under excellent visual conditions. When there is no strangulation of the viscera the incision is adequate for the reduction of the organs and successful repair of the hernia. When a large amount of viscera has been strangulated the thoracic incision should be extended across the costal margin into the abdomen.

## Archives of Neurology and Psychiatry, Chicago

### **59**:445-556 (April) 1948

*Injury of Central Nervous System Resulting from Decompression to Simulated High Altitudes. R. L. Masland. —p. 445.
Clinical Aspects of Cerebral Cysticercosis. S. Obrador.—p. 457.
Modification by Curare of Circulatory Changes During Electrically Induced Convulsions in Man: Note on D-Tubocurarine. M. D. Altschule and K. J. Tillotson.—p. 469.
Fall in Plasma Protein Level Associated with Rapid Gain in Weight During Course of Electroshock Therapy. M. D. Altschule, J. E. Cline and K. J. Tillotson.—p. 476.
Reflex Studies in Electroshock Treatment. N. Savitsky and W. Karliner.—p. 481.
Modification of Meningeal Signs by Concomitant Hemiparesis. M. W. Thorner.—p. 485.
Effect of Optic and Acoustic Stimuli on Cortex and Hypothalamus Under Conditions of Picrotoxin Convulsion. E. Gellhorn and H. M. Ballin.—p. 496.
Sturge-Weber Syndrome. A. D. McCoy and H. C. Voris.—p. 504.
Follow-Up Study of Men with Penetrating Injury to Brain. J. A. Aita.—p. 511.
*Sleep-Electroshock Therapy of Psychoses. H. S. Rubinstein.—p. 517.

**Effect of High Altitudes on Central Nervous System.**—Masland says that during the course of altitude training neurologic reactions have been observed in an altitude chamber. Symptoms tend to develop in two phases. The first, or "primary," reaction occurs during decompression or immediately after return to normal atmospheric pressure. These symptoms are usually transitory and mild. The second, or "delayed," phase of the reaction develops from two to twelve hours after "descent," at a time when the subject may have appeared completely recovered from the early symptoms of his experience. The delayed symptoms are often persistent and severe. A given subject may show only a "primary" reaction or only a "delayed" reaction, or both. Case reports to illustrate these reactions are presented. The primary type of reaction is due to the lodgment of air bubbles within the cerebral vessels. It is possible that vasospasm resulting from the lodgment of the bubble may be an additional factor in the development of symptoms. The delayed reaction is also vascular in origin and results from a change in permeability of the vascular wall secondary to its occlusion during the flight. On the disappearance of bubbles after descent the damaged vessels become dilated; the blood is stagnant and the walls are permeable. Leakage of fluid results in cerebral edema and diffuse disturbance of cerebral function. Symptoms usually progress slowly over a period of two to twenty-four hours from a circumscribed paresis, or moderate intellectual impairment with confusion, to severe paralysis and deep coma. The symptoms remain at their peak for twenty-four to thirty hours; then, if recovery is to take place, they gradually regress. In fatal cases, death has occurred from thirty-nine to seventy hours after the onset of symptoms. At necropsy flattening of the convolutions, a gelatinous exudate and, occasionally, small hemorrhages are noted. Aring has described under the term "vasoparalysis" a similar reaction of the cerebral vessels following embolism. It is thus probable that the delayed neurologic reaction represents a form of cerebral edema, comparable to the pulmonary edema seen in the late "shock" reaction, and resulting from capillary and tissue injury caused by cerebral aeroembolism and vasospasm at the time of flight.

**Sleep-Electroshock Therapy.**—Rubinstein points out that soon after the introduction of electroshock treatment it became apparent that this method was inapplicable to a number of patients who might otherwise have been expected to profit from such treatment. Such patients include those who have acquired a fear of the treatment and those who react to electroshock with psychomotor irritability. *It is the purpose of this communication* to describe the method whereby both these difficulties were successfully circumvented. The method consists in the intravenous injection of 2.5 to 5 per cent thiopental sodium prior to the application of the electric current. No complications have been observed in the course of over five hundred treatments. On the contrary, by the careful gaging of the depth of anesthesia, one may selectively evoke minor, medium or major reactions.

## Archives of Otolaryngology, Chicago

**47:**379-550 (April) 1948

The Uvula: Its Structure and Function and Its Importance. G. S. Richardson and E. M. Pullen.—p. 379.
Combined Septal Resection and Rhinoplasty for Restoration of Nasal Respiratory Function. S. Kaplan.—p. 395.
Rhinoplasty: Use of Methyl Methacrylate Implants. J. A. B. Holt and R. S. Lloyd.—p. 406.
Traumatic Lesions of Larynx. M. G. Lynch.—p. 413.
Nonregeneration of Mucous Membrane of Frontal Sinus after Its Surgical Removal (In Dog). G. E. Lieberman and J. W. Babb.—p. 421.
Chorda Tympani Nerve Graft: Preliminary Report of New Technic Used in Surgical Fenestration of Labyrinth. S. Rosen.—p. 428.
Diagnosis of Scleroma. M. G. Levine and R. E. Hoyt.—p. 438.
Hemorrhage in Deep Infections of Neck: Review, with Report of 2 Cases. M. D. Grant and G. B. Gilmore.—p. 446.
Acute Laryngotracheobronchitis: Further Studies on Treatment. F. W. Davison.—p. 455.
Disturbances of Olfaction Resulting from Intranasal Use of Tyrothricin: Clinical Report of 7 Cases. E. M. Seydell and W. P. McKnight.—p. 465.
Blast Injuries of Ears. O. Friedman.—p. 471.
General Review of Dr. George E. Shambaugh's Contribution to Otology. J. G. Wilson.—p. 485.
Calcium and Phosphorus, and Phosphatase Activity, in Otosclerosis. E. P. Fowler.—p. 491.
Otitis Media and Complications. B. R. Dysart.—p. 509.

## Archives of Surgery, Chicago

**56:**445-562 (April) 1948

Use of Defunctionalized Loop of Jejunum in Biliary and Pancreatic Surgery. L. W. Peterson and W. H. Cole.—p. 445.
Recovery of Sensation in Split Thickness Skin Grafts: Study on 187 Cases. G. A. Kernwein.—p. 459.
*Tyrothricin as Antibiotic. S. A. Lask.—p. 475.
Management of Paralyzed Bladder. G. O. Baumrucker.—p. 484.
Congenital Cystic Dilatation of Common Bile Duct: Report of Case. J. L. Keeley.—p. 508.
Comparative Results in Operations for Pilonidal Cysts. B. B. Larsen.—p. 516.
Habitual Dislocation of Shoulder Joint. F. W. Hark.—p. 522.
Complications of Gastroenterostomy. R. F. Sharer.—p. 528.
*Topical Use of Streptomycin in Peritonitis. H. S. Morton and F. Smith.—p. 538.
Intussusception of Appendix. C. B. Puestow and W. E. Looby.—p. 544.
Obstruction of Common Duct by Stone. W. H. Cole and staff.—p. 552.

**Tyrothricin as Antibiotic.**—Lask treated locally with tyrothricin 10 patients who had granulating wounds, in preparation for skin grafts. Cultures of material from the wounds were made at frequent intervals. Streptococci were rapidly eliminated. In 1 case the granulating area resulting from a burn measured approximately 40 per cent of the total surface. Tyrothricin was applied every day over the total area for approximately one month with no toxic effect. In addition, a series of 15 patients with chronic ulcers of the leg were treated by local application of tyrothricin. The cause of the lesion in 14 of the patients was thrombophlebitis; in 1 it was trauma. All patients were given ambulatory treatment. Healing took place in 9 patients within four to twelve weeks, although recurrence developed in 2. It was noted that when Pseudomonas bacilli were present in large numbers the tyrothricin was inhibited and healing was retarded. In a patient with bilateral ulcers one side was treated with tyrothricin solution and the other with boric acid solution. In spite of the fact that tyrothricin was used on the larger ulcer, the gram-postive bacterial flora was immensely reduced on this side and healing was much faster. Subsequently tyrothricin was used on the ulcer which was treated initially with boric acid: the bacterial flora was immediately altered and healing progressed more satisfactorily. Experiments on white mice and guinea pigs showed conclusively that tyrothricin will not protect an animal from peritonitis due to Clostridium welchii or Escherichia coli. Tyrothricin is extremely toxic and hemolytic; the parenteral route is dangerous. *It should be used only topically and against organisms of the gram-positive variety.* Except for these limitations, it is one of the most effective agents available.

**Streptomycin for Peritonitis.**—Morton and Smith instilled streptomycin in 1 Gm. doses daily in 6 selected cases of localized infections of the peritoneal cavity. Patient 1 had a perforated common bile duct causing subphrenic abscess; choledocholithotomy was performed and after that penicillin was used unsuccessfully because of the continued culture of Bacillus coli, which was producing penicillinase. Streptomycin instilled into the abscess on four occasions resulted in the disappearance of Bacillus coli. Penicillin was then used locally for the still persisting gram-postive organisms and resulted in a gratifying clinical cure. This case illustrates the importance of the order and the correct timing of adequate surgical treatment combined with the use of antibiotics. In patient 2 with a subphrenic abscess as a sequela of perforated gastric ulcer, penicillin and surgical drainage failed. After the instillation of streptomycin into the abscess cavity daily for four days the temperature became normal; the patient has remained well. In patient 3 with a subphrenic abscess after perforation of a duodenal stump subsequent to partial gastrectomy, streptomycin was not successful even though a single usually susceptible organism was present. In patient 4 with a perforated appendix and localized abscess in the pelvis and in the right lower part of the abdomen a single dose of streptomycin was sufficient, and the patient herself felt improvement within twelve hours. In patient 5 with acute appendicitis, with perforation and general peritonitis and pyelophlebitis penicillin was used first postoperatively for one week but failed. A culture yielded mainly Bacillus coli. Streptomycin was instilled into the cavity and after the second dose the culture remained sterile. The patient died of hepatic insufficiency on the tenth postoperative day. This case illustrates failure in timing. *The vicious cycle of toxemia was never broken.* In case 6 colectomy was performed on an exceedingly debilitated patient with ulcerative colitis, multiple polyposis and localized peritonitis. He was given penicillin, and streptomycin was instilled into the peritoneal cavity. In spite of the continued presence of intestinal organisms the patient made steady improvement and had no more than the usual reactionary temperature from such a major procedure. Streptomycin used either alone or in combination with penicillin might achieve considerable importance because of the penicillin-insensitive coliform bacteria. Penicillin remains the drug of choice for gram-positive bacteria.

## Arkansas Medical Society Journal, Fort Smith

**45:**57-78 (Aug.) 1948

General Medical Practice and American Academy of General Practice: Its Functions and Purposes. P. A. Davis.—p. 57.
Some Practical Aspects Relating to Carcinoma of Skin. I. Meschan.—p. 62.

## Blood, New York

### 3:823-966 (Aug.) 1948

Infectious Mononucleosis. H. Tidy.—p. 823.
Pathology of Infectious Mononucleosis. R. P. Custer and E. B. Smith.—p. 830.
*Chronic Infectious Mononucleosis. R. Isaacs.—p. 858.
Is It Possible to Transmit or Accelerate Development of Mouse Leukemia by Tissue Extracts? J. Engelbreth-Holm.—p. 862.
Is Leukemia a Disease of Reticulo-Endothelial System? B. K. Wiseman.—p. 867.
Possibility of Precipitating the Leukemic State by Emotional Factional. F. R. Miller and H. W. Jones.—p. 880.
Present Position in Treatment of Chronic Myeloid Leukemia. A. Piney.—p. 885.
Use of Urethane (Ethyl Carbamate) in Treatment of Leukemia: Preliminary Report. C. H. Watkins, T. Cooper and H. Z. Giffin.—p. 892.
*Urethane Therapy in Leukemia. A. J. Creskoff, T. Fitz-Hugh Jr. and J. W. Frost.—p. 896.
Effect of Urethane on Nuclear Morphology of Cells of Granulocyte Series as Observed in Marrow Cultures and Leukemic Blood. E. E. Osgood and I. T. Chu.—p. 911.
Antibiotics in Chronic Leukemia. D. Merrill.—p. 918.
Follicular Lymphoblastoma: Report of 6 Cases. O. O. Meyer.—p. 921.
Significance of Megakaryocytes in Peripheral Circulation. L. Whitby.—p. 934.
Active Principle in Leukocytosis-Promoting Factor of Exudates. V. Menkin.—p. 939.
Place of Spleen in Endocrine System. A. W. Downs.—p. 948.
Hematopoietic Perifollicular Envelope in Rat Spleen. E. B. Krumbhaar.—p. 953.

**Chronic Infectious Mononucleosis.**—Isaacs says that in a group of 206 patients with infectious mononucleosis, 53 had some symptoms which persisted for three months to at least four years or longer. The syndrome included ease of fatigue, exhaustion, aching of the legs, weakness, depression, afternoon elevation of temperature (99.8 to 101 F.), moderate splenomegaly, low blood pressure, low blood sugar, often low specific gravity of the urine, and the presence of infectious mononucleosis cells in the blood. The 53 patients with the chronic symptoms included 22 males and 31 females. The ages ranged from 8 months to 60 years. These patients had been sent in for study, with possible diagnoses of undulent fever, tuberculosis, Addison's disease, Hodgkin's disease, Rocky Mountain spotted fever, lymphosarcoma, hypothyroidism, menopausal syndrome, subacute bacterial endocarditis, neurasthenia and syphilis. All of the group showed infectious mononucleosis cells in the blood. In no case of the chronic group was the sheep cell (heterophil) agglutination titer above 1:64. In 3 of the group characteristics of lymphoblastoma developed and 2 showed the features of Banti's congestive splenomegaly. The symptoms responded to treatment with a preparation of adrenal cortical extract. The syndrome is apparently not uncommon and the intense, prolonged debility, together with the definite improvement after therapy with adrenal cortical extract, makes its recognition of great practical importance.

**Urethane Therapy in Leukemia.**—Creskoff and his co-workers report the results of urethane therapy in 24 patients with leukemia. The average daily dose was 4 Gm. orally or intravenously. The drug is irregularly effective. Chronic myelogenous leukemia appears more responsive than the lymphatic variety. Acute leukemias are not significantly altered in course by urethane. Urethane produces a fall in the total leukocyte count in a majority of all types of leukemia. Clinical improvement does not necessarily follow. Nausea is the most frequent side effect of urethane therapy. Possible marrow aplasia is the most dangerous toxic effect. Urethane is of definite, but limited value in the treatment of chronic leukemia. In some instances it compares favorably with roentgen therapy, but, in general, it is less dependable, particularly in its frequent failure to induce optimum return of normal red cell and platelet values and optimum regression of organ infiltration.

## Bulletin New York Academy of Medicine, New York

### 24:547-616 (Sept.) 1948

*Clinical Use of Radioactive Iodine. S. C. Werner, Edith H. Quimby and Charlotte Schmidt.—p. 549.
Organization of Cardiovascular Function. E. Ogden.—p. 561.
Excretion of Strong Electrolytes. L. G. Wesson Jr., W. P. Anslow Jr. and H. W. Smith.—p. 586.
Edema of Heart Failure. E. A. Stead Jr.—p. 607.

**Clinical Use of Radioactive Iodine.**—Werner and his associates used radioactive iodine of 8-day half life ($I^{131}$) in tracer studies of iodine uptake by normal and disordered thyroid glands and in the treatment of 40 cases of toxic goiter. Tracer uptake has diagnostic value when stable iodine or antithyroid drugs have not been given shortly before this procedure. Normal uptake is 20 to 30 per cent of the administered tracer dose of 50 to 75 uc. (microcuries per gram of estimated gland weight). Anything more than 40 per cent is regarded as definitely hyperthyroid; anything less than 10 per cent as hypothyroid. Therapy has been successful in 30 of 34 cases after one or, when necessary, two doses. In the other 4 it was a failure. Six other patients who were treated did not respond to one dose, and have not been followed after a second long enough to draw conclusions. The causes of failure in the present series appear to be due to inadequate dosage, related mainly to the size of the gland. It is possible that an unusually high basal metabolic rate may also contribute to an unsatisfactory result. The complications following radioiodine therapy include sore throat, cough, tender gland, flare-up of toxicity and transient hypothyroidism. Only a few cases of each have been observed; none of them was serious. Radiation hazards attendant on this therapy are unimportant under present conditions.

## Cancer Research, Baltimore

### 7:741-858 (Dec.) 1947. Partial Index

Transplantability of Mammary Cancer in Mice Associated with Source of the Mammary Tumor Milk Agent. J. J. Bittner.—p. 741.
Thyroidal and Vascular Changes in Mice Following Chronic Treatment with Goitrogens and Carcinogens. A. Gorbman.—p. 746.
Studies on Transmission of Avian Visceral Lymphomatosis. B. R. Burmester and E. M. Denington.—p. 779.
Beta-Glucuronidase Activity in Human Tissues: Some Correlations with Processes of Malignant Growth and with Physiology of Reproduction. W. H. Fishman and A. J. Anlyan.—p. 808.
Energy Mechanisms in Malignant Tumors in Relation to Chemotherapy. M. M. Black, I. S. Kleiner and H. Bolker.—p. 818.

### 8:97-144 (March) 1948. Partial Index

Attempts to Produce Cancer in Rhesus Monkeys with Carcinogenic Hydrocarbons and Estrogens. C. A. Pfeiffer and E. Allen.—p. 97.
Cancer Mortality Among Males and Females in Denmark, England and Switzerland: III. Cancers of Accessible and Inaccessible Sites. J. Clemmesen and T. Busk.—p. 129.
Effect of Growth or Retrogression of Transplantable Lymphosarcoma of Rat on Lymphoid Organs and Adrenals of Hosts. J. B. Murphy and E. Sturm.—p. 139.

## Cincinnati Journal of Medicine

### 29:427-478 (Aug.) 1948

Emotional Security for Children. Othilda Krug-Brady.—p. 427.
Neoplasms of Small Intestine. L. J. Szary.—p. 432.
Pains of New Idea. Shirley Basch.—p. 434.

### 29:479-538 (Sept.) 1948

Daniel Drake and Cincinnati College. R. Walters.—p. 479.
*Anticoagulant Therapy in Coronary Thrombosis and Rheumatic Heart Disease with Thrombo-Embolic Complications. I. S. Wright.—p. 482.
Clinical Application of British Anti-Lewisite. J. A. Luetscher Jr.—p. 491.

***Anticoagulant Therapy in Thromboembolic Diseases.***—Wright practiced anticoagulant therapy in 46 complicated cases of coronary thrombosis and in 34 uncomplicated cases. In the 46 complicated cases there were 11 deaths. In the 34 uncomplicated cases there were 4 deaths. Although the series was so small that it was of no statistical significance, it appeared that "dicumarol" did not aggravate the condition in any patient. It appeared physiologically sound to give anticoagulant therapy when there was a tendency for propagation of a thrombus, when multiple thrombi formed in the coronary arteries or elsewhere, or when there were emboli. Thromboembolic processes appeared to have been interrupted and the rate and rhythm of the heart were not directly affected by "dicumarol." In a series the study of which is now in progress in sixteen hospitals, it is planned to include 1,000 cases. So far deaths apparently have been reduced one third and the thromboembolic complications one half by anticoagulant therapy, alternate cases being used as controls. Fourteen additional patients who had rheumatic fever followed by auricular fibrillation and years later have begun to have multiple emboli were started on anticoagulant therapy on a permanent basis. Of the 14 patients 2 failed to continue with it. The other 12 who were maintained on the therapy have now gone approximately nine years without an embolism of any kind. Although the group is small, the patients present a condition for which formerly one had nothing to offer but hope that another embolus would not occur.

## Connecticut State Medical Journal, Hartford

### 12:819-912 (Sept.) 1948

Cancer in Connecticut: General Survey of Distribution and Incidence.—p. 826.
Treatment of Neurosyphilis. R. D. Adams.—p. 832.
Medical Profession's Interest in Industrial Medicine and Safety Services. T. P. Murdock.—p. 838.
Medical Treatment of Thyroid Disease. H. A Parlato.—p. 840.
*Dangers of Artificial Hyperpyrexia: Report of Serious Reaction from Intravenous Injection of Typhoid Vaccine. H. Bellach.—p. 843.
Leiomyosarcoma of Rectum: Report of Case. L. Adelson and Doris Newcomb.—p. 846.
World Health Assembly—Geneva 1948: Notes by an Amateur in Public Health. J. R. Miller.—p. 849.

**Dangers of Hyperpyrexia: Typhoid Vaccine.**—Bellach believes that the hyperpyrexia produced by the intravenous injection of typhoid vaccine has held a well deserved place in the treatment of a variety of diseases. Although unfavorable reactions are relatively rare, they may occasionally be severe enough to be a serious threat to the patient. The dosage of typhoid vaccine does not appear to be a major factor in determining the incidence of untoward reactions. Severe and fatal complications have followed the administration of minute doses, while large ones have been used without incident. The vaccine used by the dermatologic services of the New York Post-Graduate Hospital contains 1,000,000,000 Eberthella typhi, 750,000,000 Salmonella paratyphi and 750,000,000 Salmonella schotmuelleri, or total dosage of 2,500,000,000 micro-organisms per cubic centimeter. The initial dose is 0.1 cc., or 250,000,000 micro-organisms; it is given in the morning on an empty stomach, and food and fluids are withheld until the temperature reaches its peak. If the rise exceeds 105 F., it is interrupted by forcing the intake of fluids, administration of acetylsalicylic acid and the application of cold packs. If the preceding bout of hyperpyrexia has been well tolerated, the injection is repeated every third day with increments in dosage according to the patient's tolerance. The author presents the case of a man, aged 27, in whom treatment with typhoid vaccine resulted in an unusually severe reaction. Recovery in this case was complete and may have been aided by the prompt institution of adequate therapy for the shocklike and hypotensive reaction. The author considers it advisable that all patients receiving intravenous typhoid vaccine therapy be hospitalized so that any untoward reactions may be recognized and treated promptly. All patients should be studied adequately to discover any existing pathologic states which would contraindicate the use of typhoid vaccine or which might themselves be adversely affected by its administration.

## Endocrinology, Springfield, Ill.

### 43:71-126 (Aug.) 1948

Comb-Testis Relationship. H. W. Marlow.—p. 71.
Effect of Inanition on Inactivation of Estrogen by Liver. J. W. Jailer.—p. 78.
Excretion of 17-Ketosteroids by Male Rabbits During Altered Gonadal Function. D. J. Kimeldorf.—p. 83.
Mechanism of Inactivation of Alpha-Estradiol by Rat Liver "In Vitro." R. H. DeMeio, A. E. Rakhoff, A. Cantarow and K. E. Paschkis.—p. 97.
*Antithyroid Effect of Certain Foods in Man as Determined with Radioactive Iodine. M. A. Greer and E. B. Astwood.—p. 105.

**Antithyroid Effect of Certain Foods.**—Greer and Astwood direct attention to the discovery by Chesney and others in 1928 of the goitrogenic effect of cabbage in a colony of rabbits. Determination of antithyroid activity by observing the inhibition of the radioactive iodine uptake will provide a rapid and convenient method for assaying the effect of various foods in man. The authors report studies on 100 persons with sixty-one different types of foods. A tracer dose of 100 microcuries of radioactive $I^{131}$ in 10 cc. of isotonic sodium chloride solution was given by mouth in the morning, the breakfast having been omitted. The uptake of radioactive iodine by the thyroid was then determined with a Geiger-Müller counter. Counts were taken about every fifteen minutes until the course of the uptake seemed to be fairly well established. This usually required sixty to ninety minutes. The subject was then given the food to be assayed. After completion of the test meal, the subjects returned for counts at one hour intervals. Of the foods tested rutabaga was found to possess the greatest antithyroid activity. Vegetables were more active than animal products and the most potent vegetable families were the Chenopodiaceae such as beets and spinach; the Compositae (lettuce); the Cruciferae, that is, various vegetables of the cabbage family including the rutabaga; the Cupuliferae (filberts); the Juglandaceae (walnuts); the Leguminosae such as beans, peas and peanuts; the Rosaceae including apples, pears, apricots, blackberries, raspberries and strawberries, and the Umbelliferae such as carrots and celery. Cow's milk, beef liver and oysters also showed some antithyroid activity. Since there are many persons who habitually consume considerable amounts of foods that have been found to possess antithyroid activity and in whom goiters do not develop, great variation in the response to goitrogenic stimuli probably exists.

## Gastroenterology, Baltimore

### 11:157-280 (Aug.) 1948

*Criteria for Measurement of Results of Treatment in Fatty Cirrhosis. W. Volwiler, C. M. Jones and T. B. Mallory.—p. 164.
Duodenal Ulcer—Follow-Up Study of 305 Veterans Discharged Because of Ulcer. A. E. Hussar.—p. 183.
Effect of Tetraethylammonium Chloride on Gastric Motility and on Unstimulated and Histamine-Stimulated Gastric Secretion. M. Sweig, F. Steigmann and K. A. Meyer.—p. 200.
Extraction of Secretin from Intestine of Man: Absence of Secretin in Case of Fibrocystic Disease of Pancreas. A. H. Baggenstoss, M. H. Power and J. H. Grindlay.—p. 208.
Prothrombin in Liver Disease: Clinical Evaluation of Two-Stage Method. F. D. Mann, H. R. Butt and Margaret Hurn.—p. 221.
Secretion of Acid by Mouse Stomach in Vitro. H. W. Davenport and Virginia Jensen.—p. 227.

**Evaluation of Therapeutic Results in Fatty Cirrhosis.**—Volwiler and his associates define fatty cirrhosis as the progressive degenerative hepatitis commonly associated with malnutrition and the excessive intake of alcohol. They believe that what has ordinarily been called portal cirrhosis can be divided into two types: toxic or postatrophy cirrhosis and fatty or Laennec's cirrhosis. This paper deals only with cases of the latter type, which in New England is usually seen in patients with a history of severe alcoholism combined with a faulty dietary intake. The discussion emphasizes the advantages of a threefold criterion for assessing the results of specific treatment in fatty cirrhosis. Comparison has been made of clinical, laboratory and histologic findings before and after a period of a given form of treatment in 13 patients, selected as being similar from the point of view of clinical findings and histologic pattern of the hepatic tissue. The authors believe that the lack of numbers in their studies is offset by the fact that the patients were more accurately selected and more completely studied under controlled conditions than were those previously reported by other investigators. Only those patients who were in a similar histologic phase of fatty cirrhosis, as judged from the initial trocar liver biopsy, were selected for comparison; serial liver biopsies were obtained in all the patients. The livers of all patients improved at the same rate. The features common to the treatment of all patients were rest, the insistence on eating and the provision of a daily protein intake of 100 Gm. or more. Whether the amount of dietary fat given was high or low, no difference in the rate of disappearance of fat vacuolization or in the speed of hepatic repair was found. The authors believe that the addition of lipotropic agents and/or vitamins to an adequate food intake is unnecessary and does not increase the rate of improvement. Their observations suggest two other points: (1) that the ingestion of lipotropes or vitamins will never substitute for a proper diet as protection against the development of fatty cirrhosis, and (2) that a moderate alcohol intake will not prevent satisfactory repair of liver damage in fatty cirrhosis, provided that the dietary intake is ample and well balanced.

## Illinois Medical Journal, Chicago

### 94:149-208 (Sept.) 1948

Propyl Thiouracil in Management of Complicated Hyperthyroidism. G. M. Curtis, A. C. Connor and R. E. Swenson.—p. 161.
Surgical Aspects of Placenta Previa. F. H. Falls.—p. 167.
Progress in Cancer. H. L. Kretschmer.—p. 171.
*Cholesterol-Basal Metabolism Determinations: Clinical Observations in 830 Cases. J. H. Hutton and S. Fahlstrom.—p. 176.
Thrombophlebitis and Phlebothrombosis. G. O. Welland.—p. 180.
Ovarian Thecoma: Case Reports with Contrasting Symptomatology. C. L. Patton and R. J. Patton.—p. 184.
Laboratory Methods Useful in Differential Diagnosis of Chronic Chest Diseases. H. C. Sweany and J. R. Thompson.—p. 189.
Appendiceal Lithiasis. B. F. Hoopes.—p. 192.

**Cholesterol–Basal Metabolism Determinations.**—Hutton and Fahlstrom point out that there is a common belief that hypercholesteremia and low basal metabolism are reciprocal findings in thyroid deficiency; that hypercholesteremia, in the absence of other causes, points more to thyroid deficiency than does a low basal metabolism; that the blood cholesterol estimation may provide a guide in the treatment of thyroid disease, and that true thyroid deficiency is always accompanied by hypercholesteremia. Hypercholesteremia is said, also, to occur in diabetes mellitus, nephrosis, chronic nephritis, pregnancy, obstructive jaundice, cancer, celiac disease and hemorrhagic and aplastic anemia. The authors surveyed 830 patients many of whom presented endocrine problems. Cholesterol and basal metabolism tests were performed on all patients. Forty per cent of 334 cases showed low metabolism, and an insignificant percentage, 0.84 per cent or 7 cases, hypercholesteremia. Such a disproportion throws serious doubt on the value of cholesterol determinations as guides in hypothyroidism. Other factors besides the thyroid can be responsible for low basal metabolism. However, the size of this series studied—the majority of whom had some endocrinopathy—makes it unlikely that the cholesterol test per se has any but academic value as a routine test in problems of internal medicine. The series studied contained 15 diabetic persons, none of whom showed hypercholesteremia. A consecutive survey of 50 patients with low basal metabolism, minus 20 per cent or lower, showed 48 with normal cholesterol, 1 with low and 1 with hypercholesteremia. The latter patient was the only 1 of 7 with hypercholesteremia with a basal metabolism of over minus 20 per cent. The authors conclude that the blood cholesterol test is of little or doubtful value as a routine laboratory procedure in medical practice, but it may be of value in true myxedema or in certain specific indications.

## Journal of Immunology, Baltimore

### 59:221-330 (July) 1948. Partial Index

*Biologic Assay of Diphtherial Toxoid. L. Greenberg and M. Roblin.—p. 221.
Antigen-Antibody Reaction with Type A Botulinal Toxin. C. Lamanna and Beatrice W. Doak.—p. 231.
Application of Falling Drop Technic to Quantitative Determination of Precipitin. M. M. Lipton.—p. 249.
Activity of Hexenolactone Against Salmonella Enteritidis in Mice. J. W. Bartholomew and C. W. Johnson.—p. 269.
Anaphylaxis XVIII: Studies on Passive Sensitization of Dog. N. P. Sherwood, O. O. Stoland, J. S. Kirk and D. J. Tennenberg.—p. 279.
Prolonged Viability of Sporozoites of Plasmodium Gallinaceum in Extracts of Washed Chicken Erythrocytes. L. Whitman.—p. 285.
In Vitro Action of Various Chemical Agents on Trichomonas Hominis, Trichomonas Vaginalis and Trichomonas Foetus. Etta Mae Macdonald and A. L. Tatum.—p. 301.
Differentiation of Species of Trichomonads by Immunologic Methods. Etta Mae Macdonald and A. L. Tatum.—p. 309.
Neutralization Tests with Eastern Equine Encephalomyelitis Virus in Chick Embryo: Statistical Treatment of Results by Probit Method. J. F. Crawley.—p. 319.

**Biologic Assay of Different Types of Toxoid.**—According to Greenberg and Roblin different kinds of toxoids—e. g., fluid and alum precipitated—as well as toxoids of similar composition prepared by different manufacturers, vary widely in their immunizing ability. Thus there is need for a system of control whereby preparations for prophylaxis of diphtheria are assayed in terms of a standard preparation. The authors report studies that they carried out in order to establish a standard diphtherial toxoid and a procedure for assay of diphtherial toxoids. They describe three methods which are of about equal value when judged by the limits of error in individual tests and by assays of toxoids of known potency. Economy in the use of animals and other practical considerations will greatly influence the choice of test. The authors used the method that involves challenging with the skin test dose. Preliminary experiments conducted by them with toxoids from different manufacturers tended to confirm Prigge's observations and criticisms regarding the value of Lf determinations as tests of immunizing efficiency. Commercial laboratories with toxoids of uniform make and composition might be justified in using Lf determinations as an indication of immunizing efficiency providing the general potency of their toxoids has been well established with animal tests. Control laboratories, however, would not be so justified, since the toxoids from different manufacturers will probably vary considerably as a result of production methods. One provisional standard was used for testing all types of toxoid throughout this study, and, for convenience, an arbitrary unitage was established and the toxoids assayed are reported in terms of units.

## Journal of Investigative Dermatology, Baltimore

### 2:93-154 (Aug.) 1948

Thephorin in Treatment of Disseminated Neurodermatitis: Preliminary Report. W. E. Wooldridge and H. L. Joseph.—p. 93.
Treatment of Subacute and Chronic Discoid Lupus Erythematosus with Intensive Calcium Pantothenate Therapy. L. Goldman.—p. 95.
Metabolism of Skin. Effect of Vesicant Agents. E. S. Guzman Barron, J. Meyer and Zelma Baker Miller.—p. 97.
Epidermal Sensitization to Butesin. Experimental Study on Range of Specificity. E. L. Laden and L. Rubin.—p. 119.
Clinical Investigation of Bentonite-Petrolatum Ointments and Ointment Bases. L. Hollander and W. S. McClenahan.—p. 127.
Sexual and Racial Differences in Response of Sweat Glands to Acetylcholine and Pilocarpine. T. E. Gibson and W. B. Shelley.—p. 137.
Skin as Organ of Senses with Special Reference to Itching Sensation. G. H. Bishop.—p. 143.

## Journal-Lancet, Minneapolis

### 68:333-382 (Sept.) 1948

Meningitis in Infancy and Childhood. L. G. Pray and M. H. Poindexter Jr.—p. 333.
Retropubic Approach in Treatment of Cancer of the Prostate. J. J. Stratte.—p. 339.
Case Report of Drug Delirium Clinically Interpreted as Being Due to Pyribenzamine. G. M. Lott, E. S. Krug and H. R. Glenn.—p. 342.

## Journal of the Mount Sinai Hospital, New York

### 15:55-106 (July-Aug.) 1948

Lesions of Bones and Joints Arising from Interruption of Circulation. D. B. Phemister.—p. 55.
Delay in Formation of Hippuric Acid from Benzoic Acid in Patients with Liver Damage. A. Saltzman and I. Snapper.—p. 64.
*Effects of Anterior Pituitary Adrenocorticotropic Hormone (ACTH) in Myasthenia Gravis with Tumor of Thymus. L. J. Soffer, J. L. Gabrilove, H. P. Laqueur and others.—p. 73.
Vagotomy: Histopathological Observations on Infradiaphragmatic Portion of Vagus Nerve, Ten to Fifteen Months After Supradiaphragmatic Vagotomy for Peptic Ulcer. J. A. Epstein.—p. 83.
Obstacles Encountered in Recommending Psychotherapy: Follow-Up Study of 400 Cases. B. C. Meyer.—p. 90.
Protracted Course in Periarteritis Nodosa. F. H. King.—p. 97.
Acute Osteomyelitis of Superior Maxilla in Infants. J. E. Howard and A. Robinson.—p. 101.

**Adrenocorticotropic Hormone in Myasthenia Gravis.**—Soffer and his co-workers treated 1 woman aged 29 with myasthenia gravis and a thymic tumor by intramuscular administration of 40 mg. of anterior hypophysial adrenocorticotropic hormone (ACTH) daily in four divided doses for four days with a total dose of 160 mg. Treatment resulted in a pronounced decrease in the size of the tumor, a decided improvement in the clinical symptoms and elimination of the daily necessity for prostigmine. The decrease in the size of the tumor lasted for approximately three weeks, by the end of which time it regained its previous size. The improvement in symptoms continued for forty-six days after the four day course with the adrenocorticotropic factor was completed. During this period there has been a progressive reduction in the daily requirement of prostigmine, and during the past two weeks none at all has been required. It is not expected that the clinical improvement will continue indefinitely. The adrenocorticotropic factor resulted in some decrease in the urinary excretion of water, sodium and chlorides. Fluid retention and hemodilution were observed. There was a decided increase in the urinary secretion of neutral 17-ketosteroids and of 3-keto-delta-4-pregnene compounds. After the injection of adrenocorticotropic hormone there occurred a slight decrease in the urinary excretion of creatine and a pronounced reduction in the excretion of creatinine. The administration of this hormone was followed by a considerable increase in the total white blood cell count, due essentially to a pronounced increase in both the percentage and the absolute numbers of polymorphonuclear leukocytes. In addition, there was a reduction in the absolute number of lymphocytes.

## Journal of Nutrition, Philadelphia

### 36:331-424 (Sept.) 1948. Partial Index

Implantation in Normal and Vitamin E Deficient Rats. H. Kaunitz and C. A. Slanetz.—p. 331.
*Availability of Amino Acids in Some Foods. K. A. Kuiken and C. M. Lyman.—p. 359.
Vitamin A Content of Human Blood Plasma as an Index of Carotene Utilization. Eva Hartzler.—p. 381.
Effects of Soya Lecithin on Absorption, Utilization and Storage of Vitamin A and Carotene in the White Rat. G. C. Esh and T. S. Sutton.—p. 391.
Distribution and Fractionation of Monkey Anti-Anemia Factor. W. R. Ruegamer, E. M. Sporn, U. D. Register and C. A. Elvehjem.—p. 405.

**Availability of Amino Acids in Foods.**—Kuiken and Lyman maintain that the nutritive value of a protein is dependent not only on its content of essential amino acids but on the biologic availability of these amino acids as well. Incomplete digestion and absorption of an essential amino acid alters the effective composition of a food protein. The ultimate synthesis of body protein from the amino acids made available through digestion and absorption is dependent on a third factor, namely, the simultaneous appearance in the blood stream of each of the essential amino acids in suitable proportions. Protein synthesis does not occur unless a complete mixture of the essential amino acids is present at one time. The authors investigated the availability of all 10 of the essential amino acids in several food stuffs. They found that all 10 of the essential amino acids in roast beef are completely available to the rat. Wide variations occurred in the availability of the individual amino acids in cottonseed flour. Lysine in this protein source was only 65 per cent available. The corresponding value for arginine in the same sample was 93 per cent. The availability of each of the essential amino acids in wheat and peanut flour was found to be relatively high. For wheat the values ranged from 92.2 to 98.8 per cent, and for peanut flour from 94.8 to 99.5 per cent.

## Journal of Pediatrics, St. Louis

### 33:267-400 (Sept.) 1948

*Hyaluronidase in Fluid Administration: Preliminary Report. J. Schwartzman, A. T. Henderson and W. E. King.—p. 267.
Oral and Subcutaneous Administration of p-Aminomethylbenzenesulfonamide (Sulfamylon). R. C. Rutledge Jr. and M. L. Heideman Jr.—p. 274.
*Generalized Vaccinia: Study of 15 Cases. H. S. Mustard Jr. and P. W. Hendrick.—p. 281.
Case History of Breast Feeding Successfully Established During the Third Post-Partum Week on Self-Regulating Feeding Program. Frances P. Simsarian and Florence Miale.—p. 295.
Pertussis in Infancy. N. D. Rizzo.—p. 300.
Stool Eosinophilia in Gastrointestinal Allergy of Infancy. F. D. Nance.—p. 313.
*Treatment of Epidemic Vomiting in Pediatric Practice. J. E. Bradley.—p. 318.
Torsion of Spermatic Cord in Newborn Infant. M. F. Campbell.—p. 323.
Calcified Intracranial Tuberculomas. H. S. Weens.—p. 328.
Treatment of Pneumococcal Meningitis Without Intrathecal Penicillin. G. H. Lowrey and J. J. Quilligan Jr.—p. 336.
Mortality of Acute Infantile Diarrhea at Louisville General Hospital from 1943 to 1947. G. E. Prince and J. W. Bruce.—p. 342.

**Hyaluronidase in Fluid Administration.**—Schwartzman and his associates point out that administration of fluids to infants and young children has always been a problem in treating dehydrated babies. The enzyme hyaluronidase increases the rate of fluid absorption twelve times. This action is explained by the fact that hyaluronidase, a mucolytic enzyme, acts on and depolymerizes the mucopolysaccharide, hyaluronic acid. This is the gel present in the ground substance of connective tissue, which acts as a tissue barrier to fluid diffusion. Studies on adults and children revealed that hyaluronidase had no harmful effect on the patients. The extent and duration of the pain and swelling associated with clysis were greatly reduced by use of the enzyme. No alteration in body physiology was detected. It greatly facilitated absorption of all solutions used. The rate of absorption was practically identical for all patients, whether ill or not. Continuous clysis for at least five days could be given, with the needle shifted after the third day. Hyaluronidase proved of great value in the treatment of dehydrated infants. The substance would be of even greater value if it were purified so as to decrease the sensitivity factor.

**Generalized Vaccinia.**—Mustard and Hendrick direct attention to the severe vaccination complication known as generalized vaccinia. Thirty-six cases of this complication occurred in the mass smallpox vaccination undertaken in New York. Fifteen of these 36 patients, who manifested generalized vaccinial lesions, were admitted to the Willard Parker Hospital for Contagious Diseases in April and May, 1947, and these cases are reviewed in this paper. Eight of the 15 patients had not themselves been vaccinated against smallpox, but the unvaccinated group had been exposed to recently vaccinated members of their respective families. Eleven of the 15 patients gave a history of infantile atopic eczema. One patient receiving antisyphilitic therapy had an arsenical dermatitis. Two others had concurrent dermatoses, eczemoid in character but not specifically classified, while in the last patient the vaccinia was superimposed on varicella. The authors make recommendations for treatment. This includes suppression and prevention of secondary infection by the parenteral use of penicillin and saline compresses or penicillin ointment locally; prevention of further allergic reactions by removing from the diet the usual allergenic foods; prevention of further autoinoculation through restraint of infants from scratching, and maintenance of adequate hydration and of proper balance of body electrolytes. The authors conclude that patients with eczema and burns should not be vaccinated, nor should they remain in the same household with those recently vaccinated. Postvaccination complications in atopic eczema strongly suggest the advisability of vaccination during the first few months of life before the onset of most allergic skin conditions and before the infant is able to scratch. Persons to be vaccinated against smallpox should be questioned concerning active eczematous conditions in themselves or in members of their household. In the presence of the first condition the vaccination should be postponed until subsidence of the eczema. In the presence of eczema in a member of the household, the vaccinated person should live apart from the eczematous person until completion of the vaccination reaction.

**Treatment of Epidemic Vomiting.**—Bradley says that, although vomiting is a common initial symptom of acute infectious diseases of children, cases are often encountered in which it is difficult to find evidence of infection that is responsible for the vomiting. In Baltimore and its environs it has been the experience of pediatricians and general practitioners to see patients who repeatedly vomit for twenty-four hours or longer without exhibiting positive physical findings. The syndrome, while most prevalent in children, also occurs in adults. It has a rather striking seasonal incidence, being seen almost entirely during the months of October and November. A previously well child will suddenly begin to vomit. The infectiousness of the disease is illustrated by the rapid appearance of vomiting in other members of the family. Abdominal pain is often encountered and is localized in the left quadrant. It is fleeting in type and not too severe. The umbilicus is also given as the site of pain. The stools, seldom numbering more than three per day, are light in color, almost white, and have an extremely foul odor, which, with proper dietetic measures, disappears in four to five days. Transient glycosuria is frequent. Three cases are presented. The temporary derangement of the carbohydrate metabolism in the first 2 cases suggested low threshold diabetes, but this was ruled out by course and blood sugar check. The author has observed in his practice 773 cases of this clinical entity. A high carbohydrate intake is desirable. "coca-cola" syrup in teaspoon doses is given at intervals of fifteen to thirty minutes until three or four doses have been retained. Then, one teaspoonful is given every three hours for the next forty-eight hours. After the initial treatment with "coca-cola" syrup, the patient is permitted such foods as apple sauce, gelatin products, precooked cereals with only added sugar, toast or crackers, and jelly. The author has found this treatment highly satisfactory.

## Journal of Urology, Baltimore

### 60:197-362 (Aug.) 1948. Partial Index

Conservative Surgery of Upper Urinary Tract. W. J. Baker.—p. 197.
Effect of Renal Decapsulation in Experimental Mercury Nephrosis. C. W. Vermeulen and C. R. Snead.—p. 216.
*Dark-Cell Adenocarcinomas of Kidney. J. D. Fryfogle, M. B. Dockerty, O. T. Clagett and J. L. Emmett.—p. 221.
Neuroblastoma. F. A. Beneventi and F. P. Twinem.—p. 235.
Treatment of Infiltrating Carcinoma of Bladder by Transurethral Resection. R. H. Flocks.—p. 244.
Transurethral Prostatic Resection in Gases of Blood Dyscrasias. L. F. Greene and F. J. Heck.—p. 247.
Giant Prostate without Symptoms: Neurofibroma. H. G. McGavran. —p. 254.
Primary Tuberculous Prostatitis. H. L. Warres.—p. 260.
*Life Expectancy in Carcinoma of Prostate: Five Year Survey of 88 Cases. R. P. Beatty.—p. 264.
*Prognosis of Testicular Tumors. J. K. Ormond and J. W. Best.—p. 272.
Injuries of Genito-Urinary Tract. J. B. Wear.—p. 280.
Influence of Mineral Oil on Absorption of Diethylstilbestrol from Gastro-Intestinal Tract. J. C. Hsiung, G. M. Rily and R. M. Nesbit. —p. 297.
Urea-Clearance by Perfusion of Intact Small Intestine in Man. N. S. R. Maluf.—p. 307.
Effect of Ingestion of Sodium Acid Phosphate on Urinary Calcium in Recumbency. J. J. Cordonnier and B. S. Talbot.—p. 316.
Present Status of Aortography. W. F. Melick and A. E. Vitt.—p. 321.
Primary Carcinoma of Ureter with Report of 2 Cases C. E. Burford, J. E. Glenn and E. H. Burford.—p. 337.
Cryptorchism. L. G. Lewis.—p. 345.
Modern Endocrinology in Urologic Practice. A. Grollman.—p. 357.

**Dark Cell Adenocarcinomas of Kidney.**—Fryfogle and his associates show that two factors contribute to the continued use of the term "hypernephroma," even though the origin of cortical carcinomas is now established as being the renal parenchyma: (1) the historic use of the term and the extreme controversy when it was introduced and (2) the confusion of names applied to cortical malignant lesions by radiologists and pathologists. The abundance of patterns seen microscopically in cortical malignant lesions should be proof of the inadequacy of classification on this basis. Cytology as a basis for classification has been dismissed because dark cell and clear cell strands are usually seen in the same tumors. For these reasons teachers have been reluctant to discard the term "hypernephroma," which, although it is genetically false, is understood by all to mean a malignant renal tumor. For the sake of clarity the authors too have used the term "hypernephroma" in the microscopic reports, but after being confronted with a lesion that in no way, gross or miscroscopic, resembled Grawitz' original description, examining all the other "hypernephromas" removed at the Mayo Clinic and writing this paper, they are convinced that the dark cell adenocarcinoma is a tumor entity in itself and deserves recognition as such. Of the 768 tumors studied, 29 were of the pure dark cell type, making an incidence of 3.8 per cent. Their diagnosis cannot be made, as such, preoperatively, but it is suspected by alteration of gross color and ill defined encapsulation and is proved by multiple microscopic sections showing only the dark granular cells. The tumors differ from mixed and from clear cell adenocarcinomas in that they contain little or no intracellular fat, that they appear to occur more frequently in women than in men and that a mass is the symptom of which most frequent complaint is made. They frequently calcify and, regardless of size, if the tumor is removed before extrarenal extension occurs, the patients, especially the women, have long term survivals. Prognosis in this small series was somewhat better than for hypernephromas. The five year survival rate for men was 25 per cent (2 of 8) as compared with a 67 per cent (8 of 12) five year survival rate for women. Also, all of the long term survivals were of women. These were twenty-one, twenty-two and thirty-one years postoperatively.

**Life Expectancy in Cancer of Prostate.**—Beatty reviews 88 cases of carcinoma of the prostate, 68 of which had been reviewed previously. Data on the recent 20 cases are presented. Duration of symptoms prior to diagnosis varied in these from one month to one year, with an average of six months. With periodic rectal examinations as a routine procedure in all adult males, urologists can hope for still further reduction in this latent period. Prostatectomy was performed in 4; resection in 8, and castration in 6. All patients except those castrated have received diethylstilbestrol orally. Results in the 20 cases were as follows: improved, 14; failures, 3; deaths, 2, and lost to observation, 1. Of the entire series of 88 patients 35 are still living; 26 have died, and 27 are lost to observation. Of the 35 living patients, 21 are definitely improved and 14 have been classified as failing. The average survival time of the 35 so far is two years; for the 26 who have died it was 2.73 years. Since Aug. 1, 1946, when the statistics of this paper were compiled, a resurvey of the 35 living patients was made. Seven patients have died; 5 are failing; 4 have been listed as incompleted data and 19 are still in good health. Analysis of the 7 who died discloses: One survived seven years; 2 survived five years; 3 survived three years and 1 survived two years. Six of the 7 patients had either castration or resection or both performed. All 7 had taken diethylstilbestrol over long periods. Remembering the hopeless condition in which earlier patients spent their remaining days the author concludes that present conditions are much more hopeful. The new regimen renders patients more comfortable, and they live relatively normal lives for about twice as long. Many of them, instead of waiting for death, assume their former places in the community.

**Prognosis of Testicular Tumors.**—Ormond and Best point out that prognosis of testicular tumors in men of military age is unfavorable. These reports prompted them to survey their own cases, which were not restricted to men of military age. They analyzed the 40 cases of malignant tumors seen at Henry Ford Hospital between the years 1923 to 1946 inclusive. The average age of their patients was 37.8 years. Average duration of symptoms before the patient presented for treatment was 13.9 months. The three-year survival rate, irrespective of metastases, in patients under 30 years was 16.6 per cent; in those over 30 years, 57.1 per cent. Metastases were present in slightly over one third of the patients at the initial examination. Metastases appeared earlier and more frequently in young men (under 30). The prognosis is related to the presence or absence of metastases. Of 26 patients presenting without demonstrable metastases 3 are dead and 2 are untraced. Of 23 traced patients without demonstrable metastases treated by orchiectomy and immediate irradiation 21 or 91 per cent are living, periods of survival varying from one to twenty years. Simple orchiectomy with high ligation of the cord followed by postoperative roentgen therapy was utilized in this series. The prognosis of malignant tumors of the testicle has improved greatly in the past twenty-five years. Earlier orchiectomy combined with postoperative irradiation is responsible for this improvement in prognosis. Any suspicious enlargement, unusual induration or irregularity of the testicle should receive serious attention. All hydroceles should be scrutinized carefully. Operative exploration should be carried out in every doubtful case.

## Medical Annals of District of Columbia, Washington

### 17:429-484 (Aug.) 1948

Hyperfunction, Hyperplasia and Neoplasia of Adrenal Gland: Clinico-Pathologic Analysis. M. M. Melicow.—p. 429.
Causalgic State: Peripheral Pathways for Pain. F. D. Threadgill. —p. 437.
Examination and Diagnosis of Mammary Tumors. C. F. Geschickter and P. Burka.—p. 441.
Use of Mesantoin in Group of Hospitalized Psychotic Epileptic Patients. H. J. Myers.—p. 449.
Nitrofurazone in Treatment of Impetigo. F. J. Eichenlaub and R. A. Osbourn.—p. 452.

## Michigan State Medical Society Journal, Lansing

### 47:817-944 (Aug.) 1948

Elimination of Abdominal Sinuses and Fistulas. W. W. Babcock. —p. 849.
Cardiac Emergencies. I. D Fagin.—p. 853.
*Allergic Parotid Swelling. G. A. Zindler and R. H. Fraser.—p. 863.
Hydryllin in Asthma and Hay Fever: Clinical Results. S. J. Levin and Selma S. Moss.—p. 869.
Certain Aspects of Vaginal Surgery. A. D. Campbell.—p. 871.
Importance of Preoperative and Postoperative Care in Intestinal Surgery. C. F. Dixon.—p. 876.
Continued Education of Doctors. G. L. Schadt.—p. 878.

**Allergic Parotid Swelling.**—Zindler and Fraser report a 54 year old wife of a turkey farmer, referred to one of the authors for allergy study, with the suspected diagnosis of allergic parotitis, although allergy is rarely considered in this condition. The symptoms could be reproduced by exposure to turkey feathers and on one occasion from the emanation of cooking turkey acting as an osmyl. The ingestion of certain foods such as wheat and milk likewise produced the allergic symptoms. Complete relief was afforded by the elimination of these foods and adequate specific inhalant therapy. The authors believe that this condition occurs more often than previously estimated. It is probably frequently misdiagnosed in respect to its allergic causation. Allergic parotid swelling should be included in the differential diagnosis of painful enlargements in the region of the parotid glands. The food tests proved to be practical and specific in the diagnosis of food sensitivity in this patient. The recognition of the phenomenon of masked food allergy was essential in the true evaluation of this patient's symptoms, the diagnosis of her specific food sensitivities and the successful management of her therapy.

## Missouri State Medical Assn. Journal, St. Louis

### 45:625-704 (Sept.) 1948

*Overtreatment of Eclampsia. W. F. Mengert and R. L. Hermes.—p. 643.
Avoidable and Unavoidable Obstetric Hemorrhage. H. G. Hamilton.—p. 647.
Induction of Labor. O. J. Gibson.—p. 654.
Relative Importance of Rh Factor in Obstetrics. M. W. Weis.—p. 657.
Type B Hemophilus Influenza Meningitis: Report of Cases. B. H. Berrey and H. D. Palmer.—p. 661.
Rehabilitation in Missouri at "Grass Roots." R. Elman and H. L. Mantz.—p. 670.

**Overtreatment of Eclampsia.**—Mengert and Hermes report that 5 women with toxemia of pregnancy died within a relatively short time. Pulmonary edema resulting from excessive administration of fluids accounted for, or was a feature in, the deaths of each of them. In consequence, the treatment of preeclampsia or eclampsia was revised to limit the fluid intake to replacement of the daily insensible loss, calculated as 1,500 cc., plus the amount of the previous twenty-four hour urinary output. Since then, 21 consecutive eclamptic women were treated without fatality.

## New England Journal of Medicine, Boston

### 239:353-382 (Sept. 2) 1948

Role of Sodium in Production of Edema. J. P. Peters.—p. 353.
*Nail Changes in Functional and Organic Arterial Disease. E. A. Edwards.—p. 362.
Postoperative Mastectomy Dressing. L. H. Pollock.—p. 366.
Favism. A. P. Rosen and J. J. Scanlan.—p. 367.
Pregnancy Tests. S. L. Robbins.—p. 369.
Idiopathic Cardiac Hypertrophy. Cardiac Mural Thrombosis of Both Ventricles. Embolism and Infarction of Lung, Kidney, Spleen (and Brain).—p. 373.
Multiple Myeloma.—p. 376.

**Nail Changes in Arterial Disease.**—Edwards directs attention to the fact that nails undergo specific changes in vasospastic and in organic peripheral arterial disease and that these changes are senstive indicators of the severity of the arterial lesion. In arteriospastic states, changes that may be grouped under the dermatologist's term of pterygium are described. They consist of a thinning of the nail fold and a widening of the cuticle. The normal abrupt demarcation between nail fold and cuticle and between cuticle and nail plate is lost. Sympathectomy quickly restores the nail fold and cuticle to normal. In organic arterial disease there is rather thickening, roughening and darkening of the nail plate, which hides the nail bed. An increase in arterial circulation by any means gives rise to a more nearly normal growth of the plate. Less specific changes include the growth of claw nails, or the presence of "diffusion of the lunule" in organic states, and the loosening and shedding of the nail plate in severe disease of either vasospastic or organic origin. Painful nails are often an expression of the hyperesthesia of severe ischemia, in which operations for ingrown toenail usually cause gangrene. Primary infections of the nails are uncommon in peripheral vascular disease, but the nails may be involved in acral ulceration, or may show subungual abscess over an osteomyelitis of the terminal phalanx.

## Pediatrics, Springfield, Ill.

### 2:239-368 (Sept.) 1948

Immunologic and Biochemical Studies in Infants and Children with Special Reference to Rheumatic Fever: I. Role of Genetic Susceptibility. May G. Wilson.—p. 239.
Id.: II. Complement Titers in Normal Conditions. P. F. deGara and H. P. Goldberg.—p. 242.
Id.: III. Complement Titers in Abnormal Conditions. P. F. deGara and H. P. Goldberg.—p. 248.
Infectious Croup: I. Etiology. E. F. Rabe.—p. 255.
Treatment of Infant with Paroxysmal Auricular Tachycardia. R. L. Moore.—p. 266.
Oligodynamic Action of Metallic Elements and of Metal Alloys on Certain Bacteria and Viruses: I. In Vitro Observations. C. F. McKhann, H. J. Carlson and Harriet Douglas.—p. 272.
Response of Young Infants to Ingestion of Ammonium Chloride. H. H. Gordon, Helen McNamara and Helen R. Benjamin.—p. 290.
Fluorescein Circulation Times in Diphtheria. S. Cobb and H. L. Hodes.—p. 303.
Incidence of Breast Feeding in Hospitals in United States. Katherine Bain.—p. 313.

## Public Health Reports, Washington, D. C.

### 63:1147-1186 (Sept. 3) 1948

Enhancement of Growth of Strain of M. Tuberculosis (Var. Hominis) by Streptomycin. G. A. Spendlove, M. M. Cummings, W. B. Fackler Jr. and M. Michaels Jr.—p. 1177.

### 63:1187-1214 (Sept. 10) 1948

Morbidity Reporting in Local Areas: II. Problem of Measuring the Completeness of Reporting. Margaret D. West.—p. 1187.
Reduced Tellurite Medium for Isolating and Typing C. Diphtheriae. T. W. Galbraith, E. H. Bramhall and R. S. Fraser.—p. 1203.

### 63:1215-1246 (Sept. 17) 1948

Effect of Topically Applied Fluoride on Dental Caries Experience. VI. Experiments with Sodium Fluoride and Calcium Chloride . . . Widely Spaced Applications . . . Use of Different Solution Concentrations. D. J. Galagan and J. W. Knutson.—p. 1215.
Dentist-Time for Children's Services. Erna Landsiedel and I. Altman.—p. 1221.
Effects of New Tetrazolium Derivative on Tissue, Bacteria, and Onion Root Tips. W. Antopol, Susi Glaubach and L. Goldman.—p. 1231.

## Western J. Surg., Obst. & Gynecology, Portland, Ore.

### 56:473-512 (Sept.) 1948

Some Observations on Causes and Methods of Repair of Direct and Recurring Inguinal Hernias. J. K. Holloway and R. J. Johnson.—p. 473.
Salpingosigmoidal Fistula. M. Vessel.—p. 478.
Demerol in Obstetrics. J. C. Brougher.—p. 480.
Hemorrhoids: Surgical and Postoperative Approach: Observations on 100 Cases. S. P. Todaro.—p. 482.
Palliative Treatment of Cancer Patient. D. M. Green.—p. 486.
Transplantation of Abdominal Fascia for Relief of Urinary Incontinence. J. S. Rubin and R. Marx.—p. 491.
*Association of Estrogenic Administration and Adenocarcinoma of Endometrium. E. M. Stokes.—p. 494.
Peritoneal Button Operation for Ascites. T. C. McVeagh.—p. 497.
Uterotubal Insufflation with Penicillin and Streptomycin Aerosols: Preliminary Report. M. Salvin.—p. 500.
Hormonal Control of Estrous Behavior. H. H. Cole.—p. 503.

**Administration of Estrogen and Adenocarcinoma of Endometrium.**—Stokes reports the case of a woman, aged 65, who had not menstruated for nineteen years. For some obscure reason she was given 0.1 mg. of diethylstilbestrol for three of every four weeks. In the ensuing twenty-one months, she received about 470 doses of 0.1 mg. of diethylstilbestrol. She began to bleed in August 1943, two months after onset of treatment, and continued to do so at intervals. Administration of diethylstilbestrol was discontinued in March 1945. She was seen in the department of obstetrics and gynecology for the first time in August 1945, with a uterus two times the size of the uterus of a woman in active menstrual life. Curettage was performed and the pathologist reported: "Endometrial polyp with anaplastic changes in the epithelium and anaplasia and loss of polarity possibly due to abnormal hormonal stimulation." The uterus was removed. The uterine cavity contained an endometrial polyp. The report of the pathologist was as before, with the addition, "adenocarcinoma of the endometrium in the endometrial polyp." The author briefly reviews the literature on the relation of estrogens to carcinogenesis and shows that opinions differ. Most gynecologists agree that treatment in patients with intact uterus should be withheld one week out of the month and that the dose should be minimal. In the patient under discussion carcinoma developed in spite of observance of both these cautions.

## FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

### British Journal of Tuberculosis, London

**42**:51-74 (July) 1948

*Open Intra-Pleural Pneumonolysis in Treatment of Pulmonary Tuberculosis. R. A. Smith.—p. 51.
Pneumoperitoneum: Its Place in Treatment. R. Y. Keers.—p. 58.
Polyarteritis Nodosa with Pulmonary Manifestations and Cardiac Failure. M. S. R. Hutt.—p. 66.
Scrotal Pneumocele Complicating Artificial Pneumoperitoneum. H. Meltzer.—p. 70.

**Open Intrapleural Pneumonolysis.**—Smith defines open intrapleural pneumonolysis as the operation of division of adhesions between the two layers of pleura, through an incision into the pleural cavity, the division being effected under direct vision with the diathermy needle or scissors. Thirteen patients have been treated by this procedure during the last four years at Fazakerley Sanatorium. This was only a small percentage of all the patients with adhesions unsuitable for closed pneumonolysis who were treated during the four year period. The creation of a functionally sound artificial pneumothorax by open pneumonolysis has the following advantages: It does not produce a permanent collapse; the bony thorax is left intact; the operation can be completed in one stage; it produces a less mutilating and mechanically more perfect collapse than with other methods, and the control of the affected side thus obtained reduces the gravity of a spread to or extension of disease on the contralateral side. The most pertinent disadvantage is that an artificial pneumothorax space is essential to allow of thoracoscopy on the side on which the operation is contemplated. The extent to which adhesions are divided may fall short of that hoped for from the preliminary thoracoscopy, and important apicomediastinal adhesions apparently amenable to section by open operation may patently not be so when examined, the end result of the operation being worse than the primary condition. A table which gives the details of the 13 patients indicates that they were relatively young, all being less than 30 years of age and about half less than 21 years of age. The results were satisfactory in all but 3 of the patients. The author concludes that so long as relaxation of the diseased lung remains a vital matter for the patient, the possibilities of this operation should not too readily be put out of mind for the young patient with a short history of disease and a recently induced artificial pneumothorax, provided that the findings at thoracoscopy suggest the feasibility of a safe enucleation or section of adhesions by open operation, when closed pneumonolysis has failed.

### British Medical Journal, London

**2**:409-450 (Aug. 28) 1948

Reduction in Dental Caries in 5-Year-Old London School-Children (1929-47). May Mellanby and Helen Mellanby.—p. 409.
Sturge-Kalischer-Weber Syndrome of Bilateral Distribution. C. Worster-Drought.—p. 414.
Polio-Encephalitis. E. G. Brewis and C. Neubauer.—p. 416.
Gynecological Psychiatry: Preliminary Report on Experimental Clinic. L. Snaith and Brenda Ridley.—p. 418.
Centralized Gonococcus Culture for Dispersed Clinics: Value of New Transport Medium for Gonococci and Trichomonas. Mary Moffett, Jean L. Young and R. D. Stuart.—p. 421.
Role of Abdominal Trauma in Acute Appendicitis. W. R. Black.—p. 424.

### J. of Neurology, Neurosurgery & Psychiatry, London

**11**:143-226 (Aug.) 1948

Treatment of Purulent Pachymeningitis and Subdural Suppuration with Special Reference to Penicillin. F. Schiller, H. Cairns and Dorothy S. Russell.—p. 143.
Necrosis of Brain Due to Radiation Therapy: Clinical and Pathologic Observations. J. Pennybacker and Dorothy S. Russell.—p. 183.
Hemangiomas Involving the Spinal Epidural Space. A. N. Guthkelch.—p. 199.
Laminar Pattern of Lateral Geniculate Body in Primates. L. W. Chacko.—p. 211.

**Purulent Pachymeningitis.**—According to Schiller and his associates purulent pachymeningitis is characterized by a film of pus of variable thickness in the subdural space spreading over part or all of one or both cerebral hemispheres. It has been termed subdural empyema, subdural abscess, internal purulent pachypyema, subdural abscess, internal purulent pachymeningitis and various other names. The authors prefer the term purulent pachymeningitis. In the last twenty years the authors have observed 33 cases of spreading purulent pachymeningitis. Of these, 22 followed pansinusitis, 7 followed mastoiditis and 4 were secondary to distant foci of infection. Spreading osteomyelitis of the facial bones was associated with purulent pachymeningitis in at least 26 cases. Other associated lesions were: extradural abscess, cerebral abscess, severe leptomeningitis, thrombosis of the dural venous sinuses and/or the cerebral veins, abscess of the lungs and obstruction of the common carotid artery in the neck. In 27 cases bacteriologic tests were made and it was found that the subdural infection was due to streptococci in 25 cases (combined in one case with Staphylococcus aureus), to Staphylococcus aureus alone in 1 case and to pneumococcus in 1 case in which there was also intense purulent leptomeningitis. The streptococci were grown in 17 cases and were anaerobic in 10, alpha hemolytic in 6 and beta hemolytic in 1. Staph. aureus produces osteomyelitis of the skull as frequently as the non-beta-hemolytic groups of streptococci, but rarely spreads diffusely through the skull or produces purulent pachymeningitis as the non-beta-hemolytic streptococci do, though it frequently produces brain abscess. Before the introduction of penicillin 18 patients were treated by removal of variable amounts of osteomyelitic skull and attempts to drain the subdural space; all died. When limited amounts of penicillin became available 5 patients were treated by local instillation of penicillin into the subdural space, and all of these died. Ten patients have been fully treated with penicillin by systemic, subdural, intraventricular and subarachnoid routes. Of these 7 recovered. Purulent pachymeningitis most commonly follows operation for chronic pansinusitis or mastoiditis, and its incidence should be considerably reduced by maintenance of an adequate concentration of penicillin in the blood before, during and after these operations.

### Lancet, London

**2**:281-316 (Aug. 21) 1948

*The Agricultural Worker. G. F. Keatinge and R. Littlewood.—p. 281.
*Mengo Encephalomyelitis: Hitherto Unknown Virus Affecting Man. G. W. A. Dick, A. M. Best, A. J. Haddow and K. C. Smithburn.—p. 286.
Perforated Peptic Ulcer: Review of 105 Cases. A. H. Sangster.—p. 289.
*Polyarteritis Nodosa: Report of Case. R. D. Tonkin and R. J. V. Pulvertaft.—p. 291.
Minimal Requirements for Mass Radiography. F. C. S. Bradbury.—p. 293.

**2**:317-360 (Aug. 28) 1948

Selection of Medical Students. A. D. Harris.—p. 317.
Psychiatric Screening of Medical Students. R. Orton and D. R. Martin.—p. 321.
Intelligence Tests and University Careers of Medical Students. Q. H. Gibson.—p. 323.
Selection of Medical Students. A. Petrie.—p. 325.
Personality Studies of Medical Students. W. M. Millar.—p. 327.

**The Agricultural Worker.**—This report by Keatinge and Littlewood is an attempt to investigate what contributions industrial and social medicine can make to assist British agriculture in its task. It analyzes the causes, economic, political and social, of the drift from the land which is the cause of today's shortage of agricultural workers, and, reviewing the conditions under which the farm worker earns his living, suggests ways by which his efficiency and status can be improved.

**Mengo Encephalomyelitis.**—Dick and his co-workers report a case of encephalitis in a laboratory worker caused by a virus first isolated from animals in the Mengo District of Uganda. When the patient had already greatly improved, he discovered that he was deaf in the right ear and had some weakness of the upper fibers of the trapezius muscle on the right side. For isolation of the virus mice, rhesus monkeys and guinea pigs were used. The serologic individuality of Mengo encephalomyelitis virus and the relationship of the monkey, mongoose and mosquito strains were established by neutralization tests. Serums collected for yellow fever immunity tests have been tested for neutralizing antibodies to the Mengo encephalomyelitis virus. Serums from 237 persons have been tested, and 3 have been found to be immune: one from the patient whose case is described here, and two from children aged 4 and 6 years, both living on the edge of the Budongo Forest in Uganda. Thus it is established that the human infection can be contracted naturally.

**Polyarteritis Nodosa.**—Tonkin and Pulvertaft consider it curious that the presence of palpable skin nodules and eosinophilia should still be regarded as the essential diagnostic criteria of polyarteritis nodosa, because for many years now authorities have shown that in only a small proportion of cases is either of these features present. The authors also stress that polyarteritis nodosa does not carry the high mortality formerly ascribed to it; 50 per cent is the mortality rate estimated by the authors. They report a case in which the clinical manifestations were observed for seven weeks and the diagnosis was confirmed post mortem. The clinical picture may be pleomorphic, but there is almost always clinical evidence of renal involvement. Two other diagnostic "sign posts" are disproportionate tachycardia and other evidence of myocardial involvement, and persistent moderate polymorph leukocytosis.

## Proceedings of Royal Society of Medicine, London

### **41:**485-568 (Aug.) 1948. Partial Index

Smallpox 1947. W. H. Bradley.—p. 497.
Observations upon Loudness Recruitment Phenomenon, with Especial Reference to Differential Diagnosis of Disorders of Internal Ear and VIII Nerve. M. R. Dix, C. S. Hallpike and J. D. Hood.—p. 516.
Experimental Investigations in Endocrinology of Schizophrenia. R. E. Hemphill and M. Reiss.—p. 533.
Nutritional Edema. H. M. Sinclair.—p. 541.
Nutritional Anemia. M. Hynes.—p. 545.

## South African Medical Journal, Cape Town

### **22:**449-476 (July 24) 1948

*Scrub Typhus and Tropical Sprue. P. Manson-Bahr.—p. 450.
Heterotopic Ossification in Anterior Cruciate Ligament of Knee Joint: Report of Case. B. Polonsky.—p. 452.
Post-Arsphenamine Encephalopathy. S. V. Humphries.—p. 454.
Radiological Case Book IV. C. Merskey and L. Werbeloff.—p. 459.
Subdiaphragmatic Cardiac Massage: During Operation for Strangulated Inguinal Hernia: Report of Successful Case. J. Wilton.—p. 461.

**Scrub Typhus and Tropical Sprue.**—Manson-Bahr describes preparation of an effective vaccine against scrub typhus. He calls attention to the danger of laboratory infections when Castaneda's method of growing rickettsiae in the lungs of rodents is employed, and makes suggestions as to how these can be avoided. When difficulties appeared in the large scale development of vaccine by means of cultivation of rickettsiae in the lungs of mice, a search was made for a more susceptible animal, and the cotton rat proved valuable. Buckland and others developed a method by which 600 animals yielding a maximum of 9 liters of vaccine could be handled every day. Three cases of accidental scrub typhus infections occurred among 60 laboratory workers who were exposed. All 3 had received adequate immunization and recovered. Manson-Bahr points out that during the war years, 1943 to 1945, it became evident that tropical sprue was behaving as an epidemic seasonal disease with a comparatively short incubation period. The disease observed a definite seasonal incidence from March to September, with a peak period in June, corresponding to the fly and malaria seasons. There was no association with a one-sided or deficient dietary, for one third of the number consisted of fit soldiers on full rations under favorable climatic conditions. Since the incidence of sprue preceded that of dysentery, it is unlikely that one is engrafted on the other, but postdysenteric sprue was especially noted after amebiasis.

## Thorax, London

### **3:**129-184 (Sept.) 1948

Pneumopericardium Complicating Pneumothorax Therapy. P. Ellman and K. K. Hussain.—p. 129.
Absorption of Pneumoperitoneum: Study of 33 Cases. W. Fox.—p. 141.
Arterio-Venous Aneurysm of Lung. C. G. Barnes, L. Fatti and D. M. Pryce.—p. 148.
Posture in Thoracic Surgery. A. I. P. Brown.—p. 161.
Extrapleural Pneumothorax: Review of 128 Cases. A. T. M. Roberts.—p. 166.
Lung Alveolar Tumors: Report of Two Cases. G. H. Jennings.—p. 174.

## Archivos Peruanos de Pat. y Clin., Lima

### **2:**171-350 (June) 1948. Partial Index

*Streptomycin in Carrion's Disease. L. Aldana, R. Gastelumendi and J. Dieguez.—p. 323.

**Streptomycin in Carrion's Disease.**—Aldana and collaborators found by in vitro experiments that streptomycin has a bactericidal action on Bartonella bacilliformis in doses nontoxic for man. They administered streptomycin to 2 patients in the evolutional phase of acute progressive anemia and to 3 patients in the phase of verruca eruption. Excellent results were obtained in both phases. There was an immediate improvement in the severe anemia and clinical cure by the end of the treatment. The bartonella disappeared from the peripheral blood within the first three to five days of the treatment. There was rapid regression of the verrucal lesions. None of the patients in whom anemia was controlled developed verrucal eruption later. Streptomycin has a potent effect on the eruptive phase which penicillin does not have.

## Dermatologica, Basel

### **96:**337-400 (No. 5) 1948. Partial Index

Hyperglobulinemic Purpura. G. A. Lindeboom.—p. 337.
Fungicidal Effects of Phenol Derivatives. J. Horáček and M. Polster.—p. 342.
Skin Manifestations Associated with Lymphatic-Leukemia. C. H. Beek.—p. 350.
*Follow-Up of 400 Cases of Anogenital Pruritus With or Without Hemorrhoids Treated By Injection. C. Böhm.—p. 357.
*Question of Relationship Between Chickenpox and Herpes Zoster. Marian Fellner.—p. 373.

**Follow-Up After Injection Therapy of Anogenital Pruritus.**—Böhm says that two years ago he reported on treatment of varicosities of the anal region with subcutaneous injections of quinine-urethane and on alcohol injections in anogenital pruritus. Four hundred patients in whom from one to four years had elapsed since treatment were called in for control examinations. It was found that in the majority of cases the injection treatment of the varicose anorectal complex with quinine-urethane and the alcohol treatment of the anogenital pruritus were successful. A number of case histories are presented and observations on the others are recorded in tables. The author believes that in cases in which hemorrhoids are absent or minimal, conservative measures should be tried before the injection treatment is instituted.

**Relation Between Chickenpox and Herpes Zoster.**—Fellner reports histories of 3 children who contracted chickenpox. First chickenpox developed in a boy, aged 7. Seventeen days later chickenpox appeared in a cousin, a little girl of 2 years, and eleven days later an older sister of this little girl showed the exanthem of chickenpox. Herpes zoster appeared in the mother of these 2 girls five days after the chickenpox had developed in the older girl. Whereas in the first 2 children the chickenpox took a mild course, the third child had an extremely severe eruption and serious general manifestations, probably due to the simultaneous occurrence of herpes tonsurans vesiculosus, which probably induced hyperallergy in the skin.

## Harefuah, Jerusalem—Tel Aviv

### **35:**13-22 (July 15) 1948

*Prothrombinopenic Effect of Penicillin in Men. Z. A. Lewitus and A. Aschireli.—p. 13.
Complement Fixation Test for Cancer. H. J. Koebler.—p. 15.

**Thrombopenic Effect of Penicillin.**—A study of 31 patients, most of them injured in war, who received penicillin revealed to Lewitus and Aschireli that there was a tendency for the prothrombin to decrease to 50 and 60 per cent of normal under the influence of treatment with penicillin. This effect could be counteracted by the intramuscular injection of 5 mg. of a vitamin K preparation. Thus penicillin, like the salicylates and some of the sulfonamide drugs, exhibits a prothrombinopenic effect that can be counteracted by vitamin K. The authors stress this observation in view of possible cumulative prothrombinopenic effects in cases of primary prothrombinopenia, or during the treatment of patients with "dicumarol," which patients may also receive penicillin.

## Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

### 92:2137-2212 (July 17) 1948. Partial Index

*Sexual Function and Epilepsy. J. J. H. M. Klessens.—p. 2154.
Silent Cases of Hemolytic Disease of the Newborn. S. I. De Vries. —p. 2159.
Congenital Diaphragmatic Hernia. E. van Wijk and S. van Creveld. —p. 2169.

**Sexual Function and Epilepsy.**—Klessens points out that epilepsy usually develops during the prepuberal age and is frequent in those in whom the first menstruation is delayed. Reduction or cessation of the menstrual flow may be accompanied by recurrence of attacks. The author cites the case of a girl in whom epileptic attacks became less frequent and gradually subsided completely as the menstrual function became normalized between her seventeenth and twentieth year. The author has also seen at least 8 male patients between 18 and 24 years of age with deficient sexual development (indicated by absence or extreme rarity of discharge of semen) who were subject to grand mal or petit mal seizures. In 2 such patients, aged 20 and 24, respectively, whose sexual development was retarded, treatment with sexual hormone for six to eight months promoted the sexual development and first reduced and then counteracted epileptic attack, which formerly had occurred almost daily. The author believes that although the electroencephalogram reveals changes between the attacks in patients subject to epileptic seizures, this does not necessarily indicate that the primary cause of epilepsy is in the brain.

### 92:2213-2304 (July 24) 1948. Partial Index

Use of Curare with Electric Shock Therapy. A. Hutter.—p. 2220.
*Treatment of Syphilis During Pregnancy. J. C. Grosfeld and L. van der Lugt.—p. 2237.

**Treatment of Syphilis During Pregnancy.**—Grosfeld and van der Lugt studied the fate of children resulting from thirty pregnancies in which the syphilitic mothers had received various forms of treatment. The best results were obtained when 4,000,000 units of penicillin had been administered in addition to a course of bismuth compound and neoarsphenamine.

## Nordisk Medicin, Stockholm

### 39:1411-1446 (July 30) 1948. Partial Index

Can BCG Vaccination Entail Transient Decrease of Resistance? Review. J. Bøe.—p. 1411.
Intravascular Aggregation of Erythrocytes in Pregnancy, Parturition and Puerperium. H. Zilliacus and C. A. Ehrenrooth.—p. 1415.
Results of Treatment of Sterility in Women. J. Hoffmeyer.—p. 1420.
Mass Poisoning from Methyl Alcohol and Antifreeze Solution. R. Opsahl. —p. 1431.
*Hepatic Calculus and Indication for Choledochoduodenostomy. S. Müller. —p. 1433.
Osteomyelitis in Patella Treated with Extirpation. C. Holm.—p. 1434.

**Hepatic Calculus and Indication for Choledochoduodenostomy.**—Müller says that hepatic calculi were found in 36, or 3.5 per cent, of 978 patients operated on for gallstones. The permanent results of the operation were satisfactory when the calculi were few or small, unsatisfactory when they were numerous or large. Because of the considerable danger of occlusion or recurrent gallstone colic, primary choledochoduodenostomy is believed to be indicated in cases in which hepatic calculi are numerous or large.

### 39:1447-1482 (Aug. 6) 1948. Partial Index

Electrocardiography with Unipolar Leads. A. Jervell.—p. 1447.
Folic Acid Treatment of Pernicious Anemia. T. Bennike.—p. 1451.
Bilirubin Test in Obscure Cases of Jaundice. O. Ljung.—p. 1456.
Flying and Low Pressure Chambers in Treatment of Whooping Cough. E. V. V. Bergquist.—p. 1459.
Technic in Surgical Treatment of Verrucae Plantae. G. Auken.—p. 1462.
*Complications Affecting Spinal Cord in Chloroma and Myelosis. G. Holmberg.—p. 1463.

**Complications Affecting Spinal Cord in Chloroma and Myelosis.**—In the case of chloroma reported in a woman aged 20, the spinal cord was compressed by an intraspinal infiltration in the lower thoracic segment and paraplegia resulted. Holmberg states that spinal cord complications, common in chloroma, which is a special form of myelosis, are rare in other myeloses. Chloroma was not diagnosed in any of the 41 cases of myelosis, 32 chronic, 9 acute or subacute, treated in Karolinska Sjukhuset from 1940 to 1946. Symptoms from the nervous system were seen in 2 of the cases of chronic disease.

## Presse Médicale, Paris

### 56:625-636 (Sept. 11) 1948

*General Considerations on Antagonistic Complexes. G. Ramon and R. Richou.—p. 625.
*Aggravating Influence of Administration of Testosterone on Early Cancer of the Breast. P. Santy and M. Dargent.—p. 626.
Pronounced Faciolingual Apraxia in Course of Traumatic Global Aphasia. J. A. Chavany, F. Thiébaut, J. Sicard and J. Pecker.—p. 627.

**Antagonistic Complexes.**—Experiments carried out by Ramon and Richou resulted in the discovery that certain culture filtrates of Bacillus subtilis, of Penicillium notatum and of Actinomyces griseus contain antidotal, virucidal and diastasic principles in addition to the well known antibiotic principles. They therefore deserve the term "antagonistic complexes" which has been coined for them. Purified penicillin or streptomycin does not contain these additional principles. The antagonistic complexes may be substituted for the purified antibiotics in the local treatment of certain infections or toxinfections. The indications for the antagonistic complexes which have penicillin or streptomycin as base may be the same as those for the antibiotic substances themselves.

**Testosterone in Early Cancer of Breast.**—Santy and Dargent treated 8 women between the ages of 30 and 51 years with pathologic conditions of the breast diagnosed as "cystic mastopathy" by one or two intramuscular injections per week of 5 to 10 mg. of testosterone. Treatment resulted in increase in pain or in induration which characterized the lesions before testosterone treatment was instituted. There was a rapid increase in the growth of the tumor which was first considered benign. In 6 of the cases cancer of the breast was diagnosed on clinical examination and only in 1 case degeneration of a cystic mastitis was demonstrated on clinical and microscopic examination. Because of the small doses of the drug employed and the rapid development of the cancer it is suggested that in the majority of the cases the androgen had a stimulating effect on a latent cancerous lesion or on a precancerous lesion rather than a cancerogenic effect. With regard to the only case in which degeneration of cystic mastitis was demonstrated, it is emphasized that this incidence is not greater than that of spontaneous transformation of this definitely precancerous lesion. Routine treatment with testosterone is dangerous in suspected cases because it may elicit an endocrine response and may stimulate a latent malignant process.

## Revue Médicale de Liège

### 3:401-448 (Aug. 15) 1948. Partial Index

*Streptomycin in Treatment of Pulmonary Tuberculosis. A. Reginster. —p. 401.
Pulmonary Silicosis and its Diagnosis. A. Thomas.—p. 426.

**Streptomycin in Pulmonary Tuberculosis.**—Reginster treated 8 tuberculous patients, 6 men between the ages of 23 and 51 and two girls aged 15 and 18 respectively, with streptomycin. One to 1.5 Gm. of the drug in two fractional doses was injected daily for ninety days. Pulmonary cavities represent lesions least favorably influenced by streptomycin. They furnish the most favorable medium in vivo for the development of resistance of Koch's bacillus to streptomycin. Treatment with streptomycin is indicated in acute or subacute miliary, pneumonic or bronchopneumonic lesions in the absence of ulcerations, and for ulcerative, vegetative or ulcerovegetative lesions of the upper respiratory passages. A patient who belongs to one of these two groups but who in addition presents a cavity should not be treated with streptomycin except where an effective collapse can be realized before the end of the first month; i. e., the period for which according to the author's experience resistance of the bacilli to streptomycin may be delayed. Patients amenable to surgical collapse therapy may be treated preoperatively and postoperatively with streptomycin. On palliative and experimental grounds it seems justified to practice a twenty-one day streptomycin course of treatment in patients with grave lesions of the upper respiratory passages who also present pulmonary lesions not accessible to collapse therapy or who already have been submitted to an ineffective collapse. These indications should not be considered definite, since the place of streptomycin in the treatment of pulmonary tuberculosis will be established only by strictly controlled therapeutic trials in long series of fairly homogeneous cases.

## Schweizerische Zeitschrift für Tuberkulose, Basel

### 5:189-260 (No. 4) 1948. Partial Index

*Symptomatology of Pleural Endothelioma (Mesothelioma). K. Kaiser. —p. 189.
"Azygos Lobe" and Collapse Therapy; Tomographic and Endoscopic Exploration of Superior Mediastinal Recessus. R. Jeanneret, G. de Rahm, F. de Kovats Jr., and others.—p. 212.
Statistical Contribution to Tuberculosis of Kidneys. H. U. Gloor and G. Jaccard.—p. 232.

**Pleural Endothelioma.**—Kaiser reports 10 cases of endothelioma of the pleura in 5 men and 5 women between the ages of 37 and 71 years. The initial symptoms consisted of pain in the sacral region, in the hip and in the inguinal region, radiating to the shoulder, and of severe irritative cough. Three patients had stinging pain in the chest. The most important clinical sign was the rapid development of a hemorrhagic pleural exudate which had a decided tendency to recurrence. The burden placed on the pulmonary circulation caused right ventricular hypertrophy and dilatation which were demonstrated by corresponding alterations in the electrocardiogram. There was pronounced dyspnea. Secondary hypochromic anemia occurred regularly. The blood showed an important increase in sedimentation rate and a shift to the left of Weltmann's coagulation reaction. Death resulted within four to six months. Bronchoscopy may be an aid in the differential diagnosis from endobronchial tumor. Diagnosis can be established by pleuroscopy with simultaneous exploratory excision. In 1 case the diagnosis was carried out by thoracotomy. This should be practiced if less radical methods of diagnostic examination fail. There is no effective causal treatment. Symptomatic treatment requires daily aspiration of the fluid from the pleural cavity.

## Wiener Klinische Wochenschrift, Vienna

### 60:509-524 (Aug. 13) 1948. Partial Index

*Extirpation of Spleen Supporting Treatment with Penicillin for Bacterial Endocarditis. K. Fellinger.—p. 509.
Contribution to Criticism of Diagnosis of Appendicitis. G. Hennig. —p. 510.
Osteolysis Due to Squamous Celled Epithelioma. E. Morvay.—p. 512.
*Experimental Contribution to Problems of Differential Diagnosis in Connection with BCG Vaccination. S. Zimányi.—p. 515.

**Splenectomy in Bacterial Endocarditis.**—Fellinger treated 1 man aged 28 with bacterial endocarditis with 320,000 units of penicillin daily for six weeks. There was a rapid improvement in the general condition and in the tachycardia. Five months later rise in temperature and tachycardia were noted. A mild diastolic murmur over the aorta became accentuated, and peripheral signs of aortic insufficiency were manifest. The spleen was considerably enlarged. Twenty million units of penicillin were administered in six weeks, and the temperature was restored to normal. A new bout of fever occurred within a few days after the drug was discontinued. The spleen was considered as the focus of the infection and splenectomy was performed. Twelve million units of penicillin combined with sulfathiazole were administered postoperatively; the temperature returned to normal within two weeks. Culture from the spleen yielded Streptococcus viridans. The preoperative drop in the temperature resulting from penicillin suggests that the streptococci on the valves and in the blood were sensitive to penicillin. The secondary development of resistance of the streptococci in the spleen seems likely. The recovery after splenectomy demonstrated that failure of penicillin does not depend on the presence of deep ulceration of the valves, but that bacteria in the spleen, which are not accessible to penicillin, may be the carriers of the infection. Splenectomy is to be considered in every case of penicillin-resistant or recurrent bacterial endocarditis.

**Problems of Differential Diagnosis Connected with BCG Vaccination.**—According to Zimányi, the wide employment of BCG vaccination makes difficult the evaluation of the tuberculin test and of the diagnosis based on this test, since a positive reaction can take place after the injection of tuberculin after the vaccination. It is, nevertheless, indispensable to differentiate between the harmless infection which follows the BCG vaccination and a possible reinfection with its grave consequences. In Russia it has become a routine to produce Pirquet's reaction in addition to Mantoux's reaction three months after the vaccination; they consider the case as one of reinfection when both reactions to tests are positive. The correctness of this method was tested in 360 vaccinated children. With both tests performed simultaneously in 180 children, 153 (86 per cent) showed a positive Mantoux reaction and 89 (52.8 per cent) a positive Pirquet reaction. In a second group of 180 children Pirquet's reaction was produced first and Mantoux's test was performed two weeks later. The reaction to Mantoux's test was again positive in 153 children (86 per cent), while Pirquet's reaction was positive in only 10 children. The children in both groups had been vaccinated five months before the tests. No pathologic changes were demonstrated by the sedimentation rate or by roentgenologic examination in all 360 children. Mantoux's and Pirquet's tests, provided they are performed at the right time and in the right order, may be used as a basis for differential diagnosis, because a positive Pirquet reaction after BCG vaccination is not an equivalent of a reinfection and because a negative Mantoux reaction and even more a negative Pirquet reaction do not exclude a serious reinfection. A confirmation of the diagnosis in children with a positive Mantoux reaction and a negative Pirquet reaction may be obtained only by simultaneous determination of the blood sedimentation rate and roentgenologic examination. Additional examinations of the sputum and of the contents of the stomach may be carried out occasionally.

### 60:525-540 (Aug. 20) 1948. Partial Index

*Treatment of Tuberculosis of Skin With Vitamin $D_2$. G. Riehl.—p. 525.
Treatment of Acute Poisoning from Soporifics. H. Kofler.—p. 530.
Surgical Treatment of Panaritium: Results. W. Köle.—p. 531.
Value of Microscopic Examination of Mucosa of Uterus for Diagnosis of Extra-Uterine Pregnancy. H. Husslein.—p. 534.

**Vitamin $D_2$ in Tuberculosis of Skin.**—Riehl treated 150 patients with lupus vulgaris with vitamin $D_2$. Only 50 of these patients, 30 women and 20 men, have been followed long enough to be reported—24 of these have been treated for six to nine months and the remaining 26 for more than four months. Ten patients were given the French preparation "sterogyl," 3 ampules with 600,000 units each in one-half glass of water daily after each meal for the first week; 2 ampules daily for the second, third and fourth week, and then 1 ampule weekly for several months up to one year. Forty patients were given the British preparation calciferol ("glaxo"), in two weekly doses of 600,000 units, by intramuscular route. All the other patients were given the Swiss preparation "vi-dé." The duration of the disease was more than four decades in some of the patients, more than ten years in the majority and one to two years in a few. There was rapid healing of ulcerations which had resisted all other methods of treatment. Large ulcers healed within three to four weeks with a firm but fine scar, ulcers the size of a penny healed even more rapidly. There was rapid epithelization of the obstinate ulcers of the mucosa. A pronounced line of demarcation was obtained within two weeks in ulcerous destructive processes at the tip of the nose, septum and alae nasi, which prevented disintegration. Plane foci of lupus were the slowest in responding. Healing of foci of the pinna was slower than of those of the face. Infiltrates under the scars often were demonstrated on microscopic examination of patients with clinical recovery. There was increase in body weight up to 3 Kg. in three to four months. Appetite was increased. The blood calcium level showed a tendency to rise up to 14 mg. per hundred cubic centimeters and more. There were no signs of intoxication. Blood pressure showed a tendency to drop. Mantoux's test was performed every two weeks; a strongly positive reaction suggested a high allergy and warranted a good response. There was temporary swelling of regional lymph nodes and occasionally universal swelling of subcutaneous lymph nodes for twenty-four hours. Vitamin $D_2$ therapy proved to be definitely more effective and in a shorter time than all methods of treatment practiced before, except for the total excision of a focus, which may be feasible in rare cases only. The danger of intoxication may be prevented by repeated examination of blood pressure, body weight, blood sedimentation rate, differential blood count, Mantoux's test, roentgenologic control and determination of the blood calcium level. The patients must be admitted to the hospital for treatment and must remain there for several months.

# Book Notices

**Standards for the Diagnosis and Treatment of Cancer.** By the Cancer Committee of the Iowa State Medical Society. Second edition. Boards. Price, $1. Pp. 160. Athens Press, Iowa City, Iowa; A. W. Erskine, M.D., Secretary of the Cancer Committee of the Iowa State Medical Society, 326 Higley Bldg., Cedar Rapids, Iowa, 1948.

This is an excellent manual for the general practitioner dealing with the technic involved in the recognition of cancer by the family doctor who sees the majority of cancer patients first. This manual quite properly starts out with a consideration of the place of the family doctor in cancer control. It then proceeds to a detailed discussion of the various forms of cancer and the technics employed in their recognition. It has a brief chapter on radiation therapy and a fairly extensive bibliography on cancer arranged according to the source of the malignancy. This is the kind of postgraduate education which will help to keep the family physician, the general practitioner, functioning at highest efficiency.

**The Principles and Practice of Modern Cosmetics. Volume II: Cosmetic Materials: Their Origin, Characteristics, Uses and Dermatological Action.** By *Ralph G. Harry, F.R.I.C., Head of the Cosmetic* Department, Beecham Research Laboratories Ltd. Cloth. Price, 35s. Pp. 479, with 7 illustrations. Leonard Hill, Ltd., 17 Stratford Place, London, W. 1, 1948.

This book presents in alphabetical arrangement a list of materials commonly used in cosmetics or for cosmetic manufacture. Included are discussions on the origin, characteristics, uses and dermatologic action of cosmetic materials. Thus one may pass from "abracols" to zinc sulfate and find information on formula, molecular weight, occurrence or manufacture, physical and chemical properties, B. P. standard, use in toilet preparations and dermatologic action. The appendixes include discussions of methods of U. S. Toilet Goods Association for testing for certain substances and a list of the coal tar colors certified by the Food and Drug Administration. Although the book is written in England, it, unlike many others, has equal usefulness for those who reside outside the United Kingdom. Thus, this volume should be of considerable usefulness to those in the United States who are interested in the preparation or identification of cosmetics and cosmetic ingredients. It is not intended for the practitioner, but it will be found practical for the pharmacist, chemist, teacher and others who have interest in the details of cosmetology.

**Methods of Vitamin Assay.** Prepared and edited by The Association of Vitamin Chemists, Inc. Cloth. Price, $3.50. Pp. 189, with illustrations. Published for the The Association of Vitamin Chemists, Inc., by Interscience Publishers, Inc., 215 Fourth Ave., New York 3, 1947.

This book, prepared by a group of vitamin chemists, presents in detail satisfactory procedures and methods of assay available for vitamins A, D, C, $B_1$ $B_2$ and nicotinic acid and carotene. There is a reference list to the literature on the other vitamins and vitamin-like substances, and further revisions are promised to include assay methods for these. Wherever applicable, the microbiologic, chemical and physical methods of assay are described in detail. Each method explains the principle of the assay, the laboratory apparatus required, the preparation of the reagents and the detailed procedure followed by comments. There is also a general description of the vitamins, including their chemical and physical properties. An informative chapter on sampling for vitamin analyses is included for various types of food products, pharmaceuticals and biologic fluids. The use of check samples in the control of vitamin methods is specified in another chapter. This book will be useful for reference in any laboratory or industry interested in the field of vitamin assay methods.

**Occupational Therapy Source Book.** Edited by Sidney Licht, M.D. With an introduction by C. Charles Burlingame, M.D., Psychiatrist-in-Chief, The Institute of Living, Hartford, Connecticut. [Reprinted from Occupational Therapy and Rehabilitation 1947, 1948.] Cloth. Price, $1. Pp. 90. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

In this small monograph Dr. Licht presents a clear outline of the early history of occupational therapy. He then documents fundamental psychiatric studies relating to occupational therapy which were first presented by Pinel in 1801 with other quotations from the writings of Reil, Halloran, Rush, Tuke, Esquirol, Leuret, Voisin, Kirkbride and Eva Charlotte Reid. This book will be of particular interest to institutional personnel and represents an excellent choice of contributors and their contributions to this subject.

**Bilharzial Cancer: Radiological Diagnosis and Treatment.** By Mahmoud Ahmed Afifi, M.B., Ch.B., M.R.C.S. Cloth. Price, 16s. Pp. 111, with 60 illustrations. H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C. 1, 1948.

This small but fascinating book presents data from Egypt on the incidence of bilharziasis and cancer in various organs, ably discusses the roentgenologic diagnosis of bilharzial cancer and suggests the treatment of bilharzially associated cancer. It is of interest chiefly to urologists and radiologists. The evidence for an etiologic relationship between bilharziasis and cancer is, at the present time, of a statistical nature, which is inconclusive. The author shows a high coincidence of these two diseases in cancer of the bladder, prostate and colon. Unfortunately no data are presented giving the incidence of bilharziasis in these organs in nonneoplastic lesions, such as benign prostatic hypertrophy, and in routine autopsies. Other organs, such as lung, gallbladder, liver and pancreas, showed much bilharziasis but little cancer. This book, well written and interesting as it is, leaves many more questions unanswered than it settles. It left the reviewer frustrated because of its failure to give data which were probably at hand on control normal and pathologic tissues. The potential contributions of the statistical method have not yet been fully realized and the experimental approach has hardly been touched. It is hoped that the author will, in a few years, present a greatly expanded monograph on this subject.

**Die funktionelle Organisation des vegetativen Nervensystems.** Von W. R. Hess, o.ö. Professor der Physiologie an der Universität Zürich, Zürich. Cloth. Price, 18.50 Swiss francs. Pp. 226, with 80 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16; Benno Schwabe, Klosterberg 27, Basel 10, 1948.

W. R. Hess, who recently summarized his work on the diencephalic centers of the autonomic nervous system (*Helv. physiol. Acta*, supplement IV and V, 1947/1948), gives a penetrating study of autonomic organization in the present work, which is recommended to any one who is interested not only in the knowledge of pertinent facts but in the interpretation of these data from the point of view of an organismically oriented physiology. Autonomic functions show different levels of organization. Adaptive reactions are noticeable even in peripheral autonomically innervated structures, but only at higher levels (spinal, medullary and diencephalic) are complex organ systems integrated. Cortically induced autonomic functions are largely related to the expression of emotion, whereas the subcortical centers of the autonomic nervous system coordinate vegetative functions such as regulation of body temperature. Study of the book is rather difficult because of the style, but it is definitely rewarding. Print and illustrations are excellent. The literature (about 250 numbers) is arranged alphabetically, while the papers referred to in the text are numbered consecutively. This is definitely inferior to the customary methods of citation and reference.

**Highlights of the National Conference on Family Life, Washington, D. C., May 5-8, 1948.** Paper. Price, 15 cents. Pp. 22. National Conference on Family Life, 10 E. 40th St., New York 16, [n.d.].

This is a pamphlet giving a brief summary of the proceedings of the National Conference on Family Life held in Washington, D. C., May 5 through 8, 1948. It consists mainly of the suggestions and recommendations arrived at by the Conference. Minority and divergent ideas are found in the footnotes. The Conference arrived at more or less obvious conclusions relating to the needs of individual family members in their community relationships. It called for more activities to draw the father back into active family membership and suggested the provision of more opportunities for the participation of young persons in community activities. The emphasis seemed to be on strengthening the family, but there is evidence in this report of a trend of thinking all too common at this time, namely, the "strengthening" of the family by coordinating it into more community activities, which tend to deemphasize the family and exalt the *community*.

**Hetero-Specific Alteration Therapy: A New Treatment for Pulmonary Tuberculosis Based on Specific Cellular Alteration Produced by a Mixed Autolysate of Typhoid Bacilli and Gonococci.** By Susumu Nukada, M.D., Ph.D., and Chieko Ryu, M.D. Paper. Pp. 80, with 5 illustrations. Japan Medical Publications Co., Ltd., Tokyo & Kyoto, 1948.

In 1924 (*J. Exper. Med.* 40:661) Nukada and Matsuzaki reported that the resistance of the heart of animals vaccinated with a certain kind of heterobacteria was greater than that of nonvaccinated control animals. Subsequently, Nukada and his collaborators studied the fluctuations in the resistance or defensive power against bacterial infection of animals following vaccination (immunization) with different varieties of heterobacteria to note which produced the best protection. They found a mixture of typhoid bacilli and gonococci produced the best "antitubercular" resistance. During the period 1931 to 1937 Nukada and Ryu determined the minimal doses required to affect the course of experimental tuberculosis in rabbits and guinea pigs given large amounts of virulent human tubercle bacilli intravenously. Most of the treated animals survived longer than controls or those treated with coli or pneumococcus vaccine. An attempt was made to isolate the active principle, and an "antitubercular" resistance in guinea pigs was produced by a mixture of "autolysate" (autodigestion product) of typhoid bacilli and gonococci ("heterosate"). The authors feel that the results produced by "heterosate" are due to an increased resistance or defensive power against the tubercle bacilli developed as a "specific alteration" in the tissue cells. Tests were made on tuberculous patients, and improvement similar to that noted in animals resulted particularly as pertained to reducing temperature.

The book is printed in English and presents tabulations of numerous experiments submitted in evidence. Although the data might be accepted as observations, it may be questioned whether the conclusions warrant clinical therapeutic application. Scientifically, there are wide gaps in the reasoning applied to justifying therapeutic conclusions. The "heterosate" prepared from heat-killed (53 C. for one hour) organisms and containing carbolic acid can hardly be called an autolysate. There is also some confusion as to its analysis as a preventive or therapeutic agent. Preventive tests proved a lesser incidence of tuberculosis in nurses (44 persons) and therapeutic use in 932 cases of pulmonary tuberculosis with "very satisfactory" results. It is proposed to call this method of treatment for pulmonary tuberculosis "hetero-specific alteration therapy" or "heterosate therapy," based on the conception of the production of a cellular alteration whereby the resisting or defensive power of the tissue cells is increased specifically against tubercle bacilli. The book should be read critically by those interested in tuberculosis.

**Midwifery.** By Ten Teachers under the direction of Clifford White, M.D., B.S., F.R.C.P. Edited by Clifford White, Frank Cook and William Gilliatt. Eighth edition. Cloth. Price, $6. Pp. 560, with 217 illustrations. Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, 1948.

"Midwifery" shows a definite improvement in this edition. Illustrations are distinct and reproduced well. It is a clear and easily read volume.

The illustration on page 114, "Care of the Perineum," deviates considerably from the technic used in the better maternity clinics in this country. Danger of contamination of the right hand by the anus is evident. The inability to expose and protect the vulva properly by this method of delivery is self evident. Reference to episiotomy indicates a practice somewhat different from that encountered in the United States.

The discussion and management of vomiting due to pregnancy per se seems to fall a little short in completeness although there are over six pages in this section. Dieckmann has demonstrated that with proper treatment there is rarely if ever an indication for interruption because of vomiting of pregnancy, which varies from the implication of the discussion. Treatment of eclampsia seems a little incomplete.

The management of septic abortion is brief; yet indications are clearly given for the various recommended procedures. Value of penicillin is inadequately emphasized. There is a failure to point out the limited but possible value of streptomycin. Under treatment of repeated abortions the statement, "The condition is not associated with infertility," seems inaccurate because obviously repeated abortion does result in inability to conceive and carry through to viability.

The discussion of episiotomy on page 447 may not be appropriate for the student and does not rise to the level of the resident. Other suggestions of a similar nature could be submitted. The elimination of biography and much needless discourse (too often present in the best books in the United States) on the history of prior therapies is most commendable.

This book is recommended because of the direct approach, clear and adequate illustrations and the elimination of unessentials.

**A Textbook of Pharmacology and Therapeutics.** By Harold N. Wright, M.S., Ph.D., Associate Professor of Pharmacology, University of Minnesota, Minneapolis, and Mildred Montag, R.N., M.A., Director, Adelphi College School of Nursing, Garden City, N. Y. Fourth edition. Cloth. Price, $4. Pp. 720, with 95 illustrations. W. B. Saunders Co., 218 W. Washington Sq., Philadelphia 5, 1948.

This is the fourth edition of a book that is rather comprehensive in scope, perhaps too comprehensive for students of nursing. On the other hand, it is not sufficiently complete for medical students or pharmacists. The book, however, is apparently intended for nurses and probably contains all the information on drugs that is needed for this objective. Since it is intended to present pharmacology and therapeutics, one wonders about the need for discussing, for example, the physiology and pathology of the circulatory system. This would seem best left for other books which are written to present such topics. However, this is a fault not uncommonly found in many volumes; there seems to be a tendency for books undergoing revision to increase in content, with much of the increase being somewhat irrelevant material if the original perspective of the book is kept in view. But how much criticism should be directed against this is questionable, as students often appreciate accessory information that has a bearing on the subject which they are studying. One of the useful features of this book is the list of exercises included at the end of each chapter. These exercises pose some pertinent questions and should do much to fix the contents of the chapters in the minds of the readers. Obviously, the present book has had some considerable success or it would not have reached a fourth edition.

**Psychiatry for Everyman.** By J. A. C. Brown, M.B., Ch.B. Cloth. Price, $3. Pp. 247. The Philosophical Library, Inc., 15 E. 40th St., New York 16, 1947.

This simply written, short, comprehensive survey of the more outstanding contributions of psychiatry to the increasing understanding of mental and emotional illness, and of human behavior in general, recommends itself as a welcome addition to those books which can add measurably to the fundamental knowledge of "every man.". Although written primarily for the layman, it remains a scientific, authoritative review of the more outstanding contributions in this field of medicine. Extremely readable, it avoids the inaccuracies of many books which attempt to popularize medical themes. It will prove useful also to the medical student who wishes a concise survey of the field covered in his basic instruction in psychiatry, and will be welcomed by the social worker and the educator.

In the hands of the general public this book should help dispel much of the mysterious fear which exists concerning things psychiatric, while at the same time it discloses how the growing application of this accumulating knowledge, when more universally applied, will contribute immeasurably to the prevention of much human unhappiness.

**Racial Variations in Immunity to Syphilis: A Study of the Disease in the Chinese, White, and Negro Races.** By Chester North Frazier and Li Hung-Chiung. Cloth. Price, $2.50. Pp. 122, with 13 illustrations. University of Chicago Press, 5750 Ellis Ave., Chicago 37, 1948.

This monograph, based on an enormous experience with 16,845 consecutive cases of syphilis in the Chinese, white and Negro races, deals with the fundamental problem of immunity in syphilis.

The senior author has had a unique opportunity to observe the varying course of syphilis among these three different races in two first class syphilologic centers, that of the Johns Hopkins Hospital and the School of Hygiene and Public Health, and the Peiping Union Medical College. The junior author was formerly Director of Venereal Disease Control, National

Health Administration of China. The study was carried out over a period of more than twenty-five years. While the book is written in a rather philosophic tone, the statistical summations of the experience are impressive, and should satisfy the requirements of readers who wish to examine the data in detail.

Scattered studies of race and sex differences in the frequency with which late serious manifestations of syphilis occur have been made. In many instances, the studies have been based on such highly selected small groups of patients as to make the conclusions uncertain or downright impressionistic.

Frazier and Hung-Chiung submit clear evidence that syphilis in both Chinese males and females tends to become latent in a much higher portion of patients than in white and Negro males and females. The Chinese male has almost as good a chance of proceeding to latency in regard to a syphilitic infection as does the white female, in whom the infection is most benign for reasons which have only been guessed at. Early in the disease, acute periostitis and acute meningitis tend to develop much more frequently in the Chinese male than in the white. In spite of the tendency to meningeal involvement early in the disease, tertiary localization in Chinese was preponderantly extraneural.

The authors consider various backgrounds which might contribute to the benign course in the Chinese people, without coming to any definite conclusions. They reject the theory that special strains of spirochetes may cause localization of syphilis in the nervous system.

This short monograph will be of the greatest interest to syphilologists, in particular those who are struggling with the several unsolved fundamental problems in regard to the disease, and to any one interested in the peculiarities of reaction of man to chronic infectious diseases in general. It is highly recommended.

**Health Teaching in Schools for Teachers in Elementary and Secondary Schools.** By Ruth E. Grout, M.P.H., Ph.D., Associate Professor, School of Public Health and the College of Education, University of Minnesota, Minneapolis. Cloth. Price, $4. Pp. 320, with 18 illustrations. W. B. Saunders Co., 218 W. Washington Square, Philadelphia 5, 1948.

This is a book of primary interest to teachers and school administrators. As such, it can be recommended without reservation. It is prepared by a recognized authority, with assistance and collaboration from many competent advisers. It has as basic chapters the nature of health education in school and community; the health needs of the growing child; home, school and community health needs; educational principles and procedures, and planning for health education within the school. From this point the author proceeds to present guides to health teaching in elementary schools and in secondary schools. There is an excellent chapter on audiovisual materials and a good chapter on evaluation of progress in health education. A chapter is devoted to co-workers, that is, professional official and voluntary health agencies, and their cooperative role in health education. In the appendix is a rich list of general references, sources of free and inexpensive health education materials, a check sheet on school sanitation, a check sheet on the health content of courses in University High School (University of Minnesota) and a sample unit on alcohol, tobacco and narcotic drugs.

The book is well organized and is specific as well as comprehensive, telling exactly what to do and how to do it in definite situations. It is attractively made with a photogravure cover rendered washable. It is adequately indexed and well illustrated. Its interest to the physician lies in the fact that he is often called on for advice with regard to curriculum materials and health teaching guides. He cannot do better than recommend Dr. Grout's book.

**Your Diet for Longer Life.** By James A. Tobey, Dr.P.H., LL.D. Cloth. Price, $3.50. Pp. 280. Wilfred Funk, Inc., 227 E. 44th St., New York 17, 1948.

Doctor Tobey has applied his recognized capability for lively and interesting writing to the presentation in popular form of the well known and essentially uninteresting material about diet. The book completely describes the essential facts about food in their relationship to longer and better life, reducing, putting on weight, diet and reproduction, better teeth, dieting for personal beauty, the truth about acidosis, vitamins and all the other lures which health educators have endeavored to employ in the almost hopeless task of making people eat as they should instead of as they wish. It is a good manual for reference and is as readable as such a book can be expected to be. It is scientifically accurate and may be recommended by physicians to patients who want more information than is usually contained in the practicing physician's dietary listings.

**Therapy Through Interview.** By Stanley G. Law, M.D. Cloth. Price, $4.50. Pp. 313. McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 18, 1948.

Dr. Law has written an extremely interesting book. He has obviously combined a rather good knowledge of dynamic psychology with great intuition and a real interest in psychosomatic medicine. The casual reader may get the impression that psychotherapy is a rather simple procedure even though the author did not intend to convey this impression. Also, one may suspect that he is led more by intuition than by sound scientific knowledge. These are, however, minor criticisms and do not detract from the book's value. Certainly if the tremendous need for psychotherapy, particularly in the treatment of psychogenic symptoms, is to be anywhere near satisfied, approaches such as outlined in this book must be learned and utilized. The book is well worth reading by every physician regardless of specialization.

**X-Ray Diffraction Studies in Biology and Medicine.** By Mona Spiegel-Adolf, M.D., Professor of Colloid Chemistry and Head of the Department of Colloid Chemistry, Temple University School of Medicine, Philadelphia, and George C. Henny, M.S., M.D., Professor of Medical Physics and Head of the Department of Physics, Temple University School of Medicine. Cloth. Price, $5.50. Pp. 215, with 86 illustrations. Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1947.

This book is the first comprehensive survey on roentgen ray diffraction studies in biology and medicine. The information gathered by the authors indicates that the true amorphous state is rarely encountered and that many biologic materials such as muscles and nerves, which might be expected to show complete randomness of structure, yield roentgen ray diffraction patterns indicative of systematic arrangement. Valuable information on carbohydrates, amino acids and their derivatives, proteins, nucleoproteins, lipids, steroids, bones, teeth and concretions is revealed by the diffraction studies of the authors and others. A large bibliography is included.

Mathematical treatment is held to a minimum.

**Elsevier's Encyclopædia of Organic Chemistry.** Edited by E. Josephy and F. Radt. Volume 13: Tricyclic Compounds. Series III, Carboisocyclic Condensed Compounds. Cloth. Subscription Price, $78; Serial Price, $91; Volume Price, $104. Pp. 1265. Elsevier Publishing Co., Inc., 215 Fourth Ave., New York 3, 1946.

Volume 14, the first of this 20 volume series to be published, was reviewed in THE JOURNAL, Aug. 23, 1947, page 1515. A general description of the purpose and plan of the proposed series appeared in this review.

Volume 13 covers the chemical and physical properties, occurrence, synthesis and preparation, purification and reactions of the tricyclic organic compounds. Fluorene, acenaphthene, anthracene, phenanthrene and their ketone, alcohol and quinone structures and numerous derivatives are considered in detail. The rest of this book is concerned with lesser known tricyclic compounds.

**The Hospital Care of Neurosurgical Patients.** By Wallace B. Hamby, M.D., F.A.C.S., Professor of Neurology and Neurological Surgery, University of Buffalo School of Medicine, Buffalo, New York. Second *edition.* Cloth. Price, $3. Pp. 156, with 30 illustrations. Charles C Thomas, 301-327 East Lawrence Ave., Springfield, Illinois, 1948.

This useful text, now in its second edition, has met with popular approval from house officers, general practitioners and nurses since its first edition. Its chief value is the clear and concise way in which the author presents the problems of the neurosurgeon as encountered in hospital practice. The author has covered the field with care, so that a general knowledge of this highly specialized field results from a careful reading of the book. In view of the increasing importance of neurologic surgery, it is a great boon to young men entering internships and to nurses interested in surgery and postoperative care.

# Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

## MYOPATHIES

*To the Editor:*—What are the cause, etiology, symptoms, types and medical treatment of (1) muscular progressive myopathic atrophy, (2) muscular progressive myelopathic atrophy and (3) muscular progressive neuritic atrophies?

M.D., New Jersey.

Answer.—The terms used to designate the various syndromes and diseases with muscular weakness and atrophy as the primary signs are not as yet clearly defined in neurologic literature. The hereditary, familial and congenital aspects, however, of many of the muscular dystrophies and myopathies allow for broad groupings under these terms. Perhaps the simplest classification, and that most widely adopted, is the one used by Aring and Cobb in 1935. These authors used the term "primary" muscular atrophies to designate one large class, with subheadings of sporadic and familial diseases. The commonest clinical types of sporadic primary muscular atrophies are progressive muscular atrophy, including bulbar paralysis, and amyotrophic lateral sclerosis. In this group also is classed amyotonia congenita, a disease the cause of which appears to be a lack of development of muscle fibers, although there may be some changes in the Betz cells of the corticospinal tract.

Most of the other muscular atrophies are familial in type and, in turn, are divided into two groups; first, the myopathic diseases, in which the histopathologic changes, if any, are limited to the muscles themselves or to the endocrine glands, and the second group of strongly inherited diseases which have muscular atrophies usually secondary to changes in the cells of the spinal cord. The latter class, called myelopathic diseases, are true system diseases.

1. *Muscular Progressive Myopathic Atrophy.*—It is presumed that this term refers to the so-called myopathies, of which the principal ones are myasthenia gravis, family periodic paralysis, progressive muscular dystrophy, myotonia congenita and dystrophia myotonica. The etiology, in the strict sense of the word, is not known of any one of these diseases. In myasthenia gravis, however, the disease is presumed by most investigators to be due to a disorder of the chemical constituents at the myoneural junction, primarily the cholinesterase and the acetylcholine. The symptoms and medical treatment of this disorder have been extensively investigated by Viets and others, who have outlined the modern treatment with neostigmine. Family periodic paralysis, a hereditary disease, is associated with low levels of potassium in the blood serum. Attacks can be terminated by the oral administration of potassium chloride, as pointed out by Talbott and others. Little is known about the etiology and treatment of progressive muscular dystrophy. The disease occurs in many forms, but medicine is not much beyond the descriptive stage of the clinical state in the elucidation of the problems associated with the dystrophies in general. At present a recognized, effective treatment is not available. Vitamins have not been of distinct therapeutic value. Myotonia congenita, or Thomsen's disease, a hereditary condition usually occurring in childhood and persisting through life without much evidence of muscular atrophy, has been shown to respond to treatment with quinine. Thomasen's recent monograph has brought our knowledge of this disease up to date.

2. *Muscular Progressive Myelopathic Atrophy.*—The chief diseases in this group are infantile muscular atrophy, hypertrophic neuritis, peroneal muscular atrophy, Friedreich's ataxia and one or two other similar conditions. The pathology of these diseases gives evidence of close relationship. All are system diseases, with changes in the central nervous system. In hypertrophic neuritis there are additional conspicuous lesions outside of the central nervous system in the nerve trunks. In some instances hypertrophic neuritis may be associated with congenital optic atrophy and with other myelopathic syndromes. There are many subvarieties. Cobb believes that we should classify them under a general heading of familial system diseases of the neuraxis. Their etiology is unknown, and there is no specific treatment for any one of them. As in many of the other muscular atrophies, extensive clinical observations have been made, and their symptom complex is well recognized.

3. *Muscular Progressive Neuritic Atrophies.*—These have been referred to under 2.

The fullest discussion of the whole group is contained in the chapter on spinomuscular and muscular diseases in Wilson's "Neurology," although the classification used is somewhat different from and a little more complicated than the one used by Aring and Cobb.

Reference:
Wilson, S. A. K.: Neurology. 2 vols. London: Edward Arnold & Co. 1940, pp. 975-1005.

## PENICILLIN AND FUNGICIDES

*To the Editor:*—Is penicillin locally helpful in the treatment of mycoses?

L. Edward Giovine, M.D., Woodside, N. Y.

Answer.—Penicillin is entirely useless in the local treatment of superficial fungus infections in man. Most pathogenic strains or species of the dermatophytes have been tested in vitro and proved to be resistant to penicillin in concentrations of 500 or more units per cc. (Fleming, R. S., and Queen, F. B.: Penicillin Resistance. II Of Fungi, *Am. J. Clin. Path.*, **16**:66, 1946).

Pathogenic dermatophytes themselves produce substances resembling penicillin (Peck, S. M., and Hewitt, W. L.: Production of Antibiotic Substance Similar to Penicillin by Pathogenic Fungi (Dermatophytes), *Pub. Health Rep.* **60**:148, 1945), although they have incomparably less bactericidal effect. That there is some relation between penicillin and antigens produced by dermatophytes is substantiated in clinical experience by the frequent appearance of "dermatophytids" (localized or generalized allergic eruptions) following systemic administration of penicillin in patients who are carriers of dermatophytes. This reaction is similar to that following the injection of dermatophyte vaccines in allergic individuals.

Theoretically it might seem useful to add penicillin to fungicidal preparations for the purpose of combating secondary bacterial infection which often accompanies fungus infections. However, the local application of penicillin carries with it the danger of cutaneous or general sensitization. This danger is so serious that warnings have been issued against the indiscriminate local application of penicillin to the skin surface (see, for instance, Sulzberger, M. B., and Baer, R. L.: Year Book of Dermatology and Syphilology, Chicago, Year Book Publishers, 1946, p. 12). Unnecessary local application may cause sensitization of such degree that later, when penicillin might be vital, its systemic administration is precluded. For combating secondary bacterial infection in dermatomycoses the traditional though less potent bactericides such as ammoniated mercury are entirely satisfactory. Their use leads less often to sensitization, and its consequences, if it occurs, are less serious.

## PARENTERAL QUINIDINE

*To the Editor:*—Is there a preparation of quinidine which may be injected hypodermically or intramuscularly?

Dr. Tom Spies, in his monograph, "Rehabilitation Through Better Nutrition," in figure 20, exhibits a reduction in the size of a patient's dilated heart following the use of thiamine. Have such satisfactory effects been reported following the use of nicotinic acid, nicotinamide or coramine?

M.D., Montana.

Answer.—The report of Sturnick, Riseman and Sagall (The Journal, March 20, 1943, p. 917) includes directions for the sterilization and ampuling of a parenteral solution of quinidine hydrochloride prepared according to the following formula:

| | Gm. or Cc. |
|---|---|
| Quinidine hydrochloride ........................ | 15 |
| Antipyrine ........................................ | 15 |
| Urea .................................................. | 20 |
| Distilled water ..........................to make | 100 |

*The Bulletin of the American Society of Hospital Pharmacists* has indicated that a "small number of 10 cc. ampules of quinidine lactate with 0.65 Gm. per ampule may be obtained for experimental use by cardiologists if they write directly to Dr. Kenneth Kohlstaedt, Medical Department, Eli Lilly and Company, Indianapolis, Indiana." The recent report of Katz (The Journal, April 17, 1948, p. 1028) includes information on parenteral use of quinidine, but mention is not made of a commercial source of supply.

The illustration in the Spies monograph to which the correspondent refers relates to a case of beriberi heart disease in which decrease in heart size followed parenteral thiamine therapy. Evidence that this particular manifestation of thiamine deficiency has been effectively treated with nicotinic acid, nicotinamide, or nikethamide ("coramine") is lacking. Cardiac dilatation reported in this case was due to a specific vitamin deficiency. Evidence that cardiac dilatation from other causes will respond to thiamine or to any other vitamin is absent.

## CHRONIC URTICARIA

*To the Editor:—A male patient aged 44 has had recurrent hives since January 1948. Physical examination did not elicit abnormality except for a mild spasticity of the colon. The patient was hospitalized and given large doses of diphenhydramine hydrochloride intravenously for about one week with some improvement. He was sent home with the instructions that he should take 4 to 8 (50 mg.) capsules of diphenhydramine hydrochloride a day as needed for the hives. After six months of medication with this drug he came to me for further treatment. Skin tests for food allergy revealed strong positive reactions to yeast, chicken, lamb, shrimp, trout, cheese, string beans, sugar cane and several other foods. I gave him a diet to follow, and have also given him calcium intravenously with some improvement. The hives bother him about 3 a. m. He feels hungry all the time, and it seems that when he eats to satisfy himself he is more apt to have the hives. I also gave him thyroid, 1 grain (60 mg.), daily. A dermatologist suggested that he spend three weeks away from home. He did this, but while he was away he became worse. This patient has been cooperative, but after seven months of the hives he is becoming impatient. He is somewhat nervous, but he takes phenobarbital when he needs it. Is there anything else that I might do for him? I have tried him on the other new drugs such as tripelennamine hydrochloride and "thephorin" (2-methyl-9-phenyl-1, 3, 4, 9-tetrahydroindeno [2.1-C] pyridine) without avail.*

*M.D., Colorado.*

ANSWER.—Chronic urticaria usually can be traced to one of the following: drugs, foci of infection, foods or psychogenic factors. Less often physical agents such as heat, cold, light rays or exercise; endocrine abnormalities; or external agents, such as insect bites, vapors or dust, may initiate an attack. It seems that almost any abnormality may be the underlying source of chronic urticaria, even slight dermatophytosis. Therefore, it is essential that a painstaking and searching history be taken on the chance that it may reveal absorption of a chemical from an unusual source such as from toothpaste, nose drops or cosmetics.

Skin tests, unless expertly performed, are apt to give misleading results when performed on a skin subject to urticarial lesions. When foods are suspected, they sometimes can be identified by means of a diet-elimination regimen in which the patient, after having water only for one day, gradually adds a simple foodstuff to the diet, one thing at each meal. An accurate diet record should be kept. One should first examine the patient carefully for hidden foci of infection and other abnormalities, even to the point of examining catheterized specimens of urine, prostatic smears, roentgenograms of the sinus cavities and the cholecystic system. The patient should be observed in the meantime and questioned repeatedly for evidence that might establish a psychogenic origin. Throughout the investigative phase, he should receive no drugs. Later, if necessary, one may cautiously prescribe antihistaminic preparations or ephedrine sulfate, ⅜ grain (25 mg.) four times daily, and empirically mercury with chalk, and perhaps cholagogues, laxatives and mild sedatives.

## COLLAPSE THERAPY

*To the Editor:—With use of "lucite" plumbage in pulmonary tuberculosis collapse therapy have there been reports of "lucite" irritation as a cause of carcinomatous lesions? Are there other reported complications from use of "lucite" in pulmonary collapse therapy?*

*M.D., Nebraska.*

ANSWER.—In pulmonary tuberculosis the use of "lucite balls" and paraffin (surgical) in an operation known as extrapleural pneumonlysis does not cause malignant lesions. The surgeon who used "lucite balls" first, stopped after the 26th operation because they traveled. Surgical paraffin, however, acts as a firm mold and fills any contour of collapse. Both paraffin and lucite are foreign bodies. Any pleural space can receive paraffin, but in one with a thin pleura "lucite balls" are contraindicated since they will tear tissue and allow the balls to migrate. In any operation for tuberculosis the biggest complication is tuberculosis.

## RAGWEED IN HONOLULU

*To the Editor:—What is the giant rag weed situation in Honolulu?*

*Lester Neuman, M.D., Washington, D. C.*

ANSWER.—Giant ragweed plants do not grow in Honolulu or in any part of the Hawaiian Islands. Common ragweed is found in a restricted prairie area south of Waimea (Kamuela) on the northern part of the Island of Hawaii. The prevailing northeast winds cannot possibly carry the relatively small amount of pollen from these weeds to any city or village on Hawaii or any of the other islands of the group. False ragweed (Franseria strigulosa) is a common roadside plant from Pearl Harbor northward to Haleiwa and along the north shore of the Island of Oahu. The total acreage of these weeds is comparatively small and the prevailing northeast winds carry the pollen away from Honolulu rather than toward the city. Atmospheric pollen tests made by a local allergist over a period of eleven months did not reveal a single grain of ragweed pollen.

## MONGOLISM

*To the Editor:—Please send information regarding infants with mongolism. What can be done for this condition?*

*W. E. Lewis, M.D., Kansas City, Mo.*

ANSWER.—Ingalls has published a detailed study of the pathogenesis and etiology of mongolism in the *American Journal of Diseases of Children* of March and August 1947. No specific treatment is known to be effective in the amelioration of the syndrome. Numerous attempts at endocrine therapy have met with indifferent results. Any teaching hospital, "top flight" clinic, certified pediatrician or experienced general practitioner should be able to make the diagnosis during the first year of life. Often it can be made at birth on the basis of the characteristic physiognomy, brachycephaly and frequently associated stigmata such as dwarfed middle phalanx of the fifth finger, congenital heart disease, malformed ears and other malformations.

Placement is highly advisable (Aldrich, C. A.: *Am. J. Ment. Deficiency,* **52:**127, 1947), in order to allow other or future children a normal home. A child with mongolism will adapt happily, quickly and permanently to a custodial environment. Placement is the kindest thing which can be done to the afflicted person and is so obviously indicated from both the parents' and society's point of view that the only single contrary argument is sentiment so divorced from reality that it is closer to sentimentality.

A ray of hope exists—not of cure, but of prevention. All epidemiologic evidence points to maternal factors as the cause of mongolism. Repetition of the disease in the same family is so rare that the risk is ordinarily no contraindication to future pregnancy. A complete checkup of the mother's health is first indicated, with positive measures to remedy any chronic, systemic, endocrine or gynecologic disorder.

## COMBINATION OF ANTIBIOTICS

*To the Editor:—Is there a contraindication to the combined use of penicillin, streptomycin and sulfadiazine? Can penicillin and streptomycin be combined in the same isotonic sodium chloride solution and given together? Can morphine or codeine be added to this solution, thereby eliminating additional annoyance to the patient?*

*Glenn T. Howard, M.D., Pearsall, Texas.*

ANSWER.—Combined use of penicillin, streptomycin and sulfadiazine is permissible. Although the spectrum of activity of each of these is different, they are frequently used in combination in treating mixed bacterial infections. Penicillin and streptomycin may be given together in the same syringe. Solutions containing the two antibiotics should not be kept for more than a few hours, since the acid salts of streptomycin may tend to inactivate the basic salts of penicillin. This would not occur rapidly, so that such mixtures would probably be stable for several hours.

Although reports of the effects of mixtures of morphine or codeine and the antibiotics are not available, these narcotics are marketed as acid salts; there is therefore a possibility of pharmaceutic incompatibility with penicillin. Before preparing such mixtures, one should make a study of possible incompatibility. If not incompatible the drugs could be combined extemporaneously in a single injection.

## LESIONS OF FRONTAL AND PONTINE AREAS

*To the Editor:—What are the diagnostic signs in the eye which would distinguish a lesion in the frontal lobe from one in the pons if both produce paralysis of lateral gaze?*

*M.D., North Dakota.*

ANSWER.—The most characteristic, but uncommon, ocular sign of a lesion of the frontal lobe is the so-called Foster-Kennedy syndrome: true retrobulbar neuritis with formation of a central scotoma and primary optic atrophy on the side of the lesion together with concomitant papilledema in the opposite eye. Nearly always depression or loss of the sense of smell is found on the side on which the retrobulbar neuritis has occurred.

The ocular sign most characteristic, and again uncommon, of pontine tumors is paralysis of the sixth nerve on one side with an opposite-sided hemiplegia combined with inability to move the eyes conjugately to the side of the lesion (Foville's syndrome).

Paralysis of lateral conjugate movements may occur with hemispheric or pontine lesions, and unless the lesions are bilateral the paralysis is likely to be transient. The differential diagnosis is discussed by Bielschowsky (Paralysis of the Conjugate Ocular Movements of the Eyes, *Arch. Ophth.* **13:**569, 1935) and Walsh (Clinical Neuro-Ophthalmology, Baltimore, Williams & Wilkins, 1947, pp. 123, 296, 1143 and 1215).

## USE OF DIGITALIS IN PEDIATRICS

*To the Editor:*—What are methods, doses and drugs for rapid and slow digitilization in pediatric practice? What doses and methods of administration of quinidine are recommended for infants? I refer to supraventricular tachycardia. M.D., Massachusetts.

Answer.—Large doses of digitalis should not be given to patients with cardiac disease during the active, febrile stage of rheumatic fever or any other manifestation of rheumatic disease. Large doses may produce heart block or arrythmia.

Ordinarily, digitalis should be given by mouth, usually about 1½ grains (0.1 Gm.) once or twice daily. If nausea or slowing of the pulse should develop, digitalis should be discontinued for several days until symptoms of intoxication have disappeared. When difficulty occurs in the oral administration, the drug may be administered by rectum (15 to 30 minims [1 to 2 cc.] of the tincture diluted with 1 ounce [30 cc.] of water). When the pulse rate has been reduced, the dose should be diminished to 15 minims diluted with 1 ounce water, once or twice daily. The use of digitalis in pericarditis is dangerous. There are few if any indications for the use of quinidine in heart disorders of childhood. Auricular fibrillation is rare, and it is doubtful whether the administration of quinidine would help. The dose of the drug for children is usually stated as 1 to 1½ grains (60 to 100 mg.) two to three times daily, or in any given case the dose would be calculated on the basis of the age and weight of the child.

## KERATITIS SICCA

*To the Editor:*—A male patient, aged 69, has a negative history up to 1945; when glaucoma of both eyes was diagnosed. Two posterior sclerotomies (trephines) were done in each eye within a period of six months before the pressure remained normal. Throughout the period of treatment he has been given a host of drops to instil into his eyes. During the past year he has had an irritated right eye with sensations of burning, smarting, and photophobia relieved only when the eye is closed. Six ophthalmologists have made a diagnosis of chronic catarrhal conjunctivitis. Purulent discharge, excessive lacrimation and positive colors are absent. On gross inspection the conjunctiva *appears normal. Clinical examination* and all laboratory investigations have been negative. Treatment locally in addition to the many instillations, has included hot applications, cold applications and flushing with normal saline. General treatment has included sulfadiazine, penicillin, salicylates, antihistamines, and sedatives. The patient is a business man and the constant irritation is making a psychoneurotic of him. Please discuss this condition. M.D., New York.

Answer.—It is not likely that glaucoma nor the use of miotics is directly accountable for the irritation of the right eye. For two and one half years miotics have not been necessary and presumably not used. Other solutions instilled into the eyes have been used to arrest such sensations as burning, smarting and photophobia of one eye only. Evidently the symptoms are not evidences of drug sensitivity. In view of the negative cultures and the nearly normal appearance of the conjunctiva, there is little probability that the symptoms are caused by infection or malfunction of the lacrimal drainage apparatus, and it would seem that the eye has been subjected to unnecessary and unwarranted medication with antibacterial and antibiotic agents used without usual indications. The symptoms are those of insufficient lacrimyal secretion. Relief by closing the eye, protection from rapid drying of the cornea, is a common experience in keratitis sicca. Schirmer's test and slit lamp inspection of the corneal epithelium following staining with fluorescin solution may tell the story. If keratitis sicca is found, artificial tears containing his own blood serum will probably give the greatest and most prompt relief. In any event the instillation into the eye of medicinal solutions should be kept to a minimum and sedative ointments used only after patch tests have indicated lack of drug sensitivity.

## CIRCUMCISION

*To the Editor:*—What are indications for circumcisions? This type of surgery has become almost routine in this community, and the question has arisen as to its merit in newborn infants. What is the *attitude* of the American College of Pediatrics, and the American College of Surgery in this regard? S. R. Parkinson, M.D., Marysville, Calif.

Answer.—It is generally conceded that routine circumcision of the newborn is definitely indicated and should be done, not only for cleanliness of the genitalia, but also to prevent future phimosis, periphimosis and balanoposthitis. The American College of Surgeons does not give a definite opinion on this subject, and, as far as can be determined, neither does the American Society of Pediatrics.

## TASTE ABERRATION

*To the Editor:*—A patient, aged 42, has had a nauseating taste in her mouth for the past four years. She has the impression that this taste is worse when the saliva flows into the mouth. This offensive taste appeared shortly after having a cavity in her second right inferior molar cleaned and filled. She consulted me two years after having this dental attention. Prior to her visit she had had various medicinal treatments, as well as psychic therapy, all to no avail. I encouraged her to have the filling removed and a temporary one inserted for a few months, which was done, but without any relief. She had a slight nasal obstruction which was corrected and also a tonsillectomy, hoping to obtain some alleviation, but without result. I referred her to a specialist in gastrointestinal diseases, who was unable to help her. She was given potassium iodide, sulfanilamide and frequent application of silver nitrate (4 to 8 per cent) about the mouth. She has been tested for allergy and is sensitive to wheat, corn, and a few other foods, all of which have been omitted for one or two weeks at a time. Cosmetics have been omitted without benefit. Evidence of any pathologic condition is lacking. Please suggest treatment. M.D., *Ohio.*

Answer.—The four year stable persistence of the complaint, with the absence of an obvious local or regional lesion or infection, in a woman aged 42 years, with a failure to respond to the many therapeutic approaches, would suggest that the cause is psychoneurotic. A situational intolerance, the climacteric and hysteria may all include abnormalities of taste.

Taste aberrations may also result from secretions or accretions, from infections of the upper and the lower respiratory tract, from a fault in sensory reception, conveyance and interpretation, and from an association-memory cause. It is supposed, from the report, that the tongue, salivary glands, teeth, gums, breath, sinuses and lungs are normal; all of these may cause a disagreeable taste if they are abnormal, and should be checked again for certainty.

The three drugs which have been taken for therapy may themselves cause a "bad taste," as do numerous others. It should be certain that she is not using an unmentioned laxative, bromide, tonic, nasal solution or unusual diet ingredient, since some of them may be causative. The dentifrice or mouth wash which she uses should be investigated. Food particles, especially meat, may become foul in a few hours, and may be caught each day in the same spaces between teeth; this factor may be ruled out by regular use of dental floss and a refreshing, astringent zinc chloride mouth wash.

Since "flavor" is composed of both smell and taste elements, and since nausea was mentioned, a nasal cause should be sought. Glossitis, allergy and differences of electric potential are origins which seem to be excluded.

To decide whether the quantity or quality of saliva is of importance, two tests may be made. Give her (without describing its possible effect) a tablet (15 mg.) of neostigmine bromide after one or two meals; profuse watery saliva should result. A tablet of homatropine methylbromide may be given fifteen minutes before each of several meals; a decrease in saliva flow, as well as a gastric relaxation, should result.

If all these observations are of no help, obtain the impression of a good neuropsychiatrist. He can quickly check the taste areas of the tongue, exclude a remote uncinate cause, and probe the emotions for a functional origin.

## INCREASED LIBIDO OF MENOPAUSE

*To the Editor:*—A patient has complained of abnormal sex desire for the last two years. She is a white woman aged 45 years who has started the menopause syndrome. She did not have such symptoms until about the onset of menopause. What is the diagnosis and treatment of this case? M. K. Braly, M.D., Mooreland, Okla.

Answer.—Most women note a gradually decreasing sex desire following the onset of the menopause, although this factor varies with different women. Some few women note a decided increase in libido, sometimes accounted for by the absence of fear of pregnancy. Sometimes patients say that estrogens increase their sex desire. A thorough pelvic examination should be done to rule out hormone-producing tumors of the ovary. Occasionally androgens will decrease this disturbing symptom, but they should be used guardedly and not in sufficient quantities to masculinize the patient.

There is frequently a psychogenic condition underlying such phenomena, as the libido pattern is usually established before the onset of the menopause and it usually does not change greatly.

Other questions to be considered are: What are her sexual outlets (husband, family, children)? Is she frustrated? Are the talk of other women and her reading habits healthy? Psychotherapy plus small doses of phenobarbital and a busy schedule can frequently be combined to subdue the disturbing problem.

## CELIAC SYNDROME

To the Editor:—Please outline therapy for celiac syndrome excluding protein milk and banana flakes. What other foods can a child eat? Can the patient take diabetic foods, since they are low in carbohydrate content?

M.D., Massachusetts.

ANSWER.—The most important consideration in undertaking therapy of a child with celiac syndrome is correct diagnosis. Infants and children with celiac syndrome have distended abdomens, wasting and bulky foul stools. These symptoms may arise from a variety of causes including infection, absence of secretion from the pancreas as in fibrosis of the pancreas, disturbance of function of the bowel due to congenital abnormality of the intestine, parasitic infestation and a number of other disease states which will interfere with intestinal digestion. It may be assumed that the child has intestinal malabsorption for which no cause has been found and that an idiopathic intestinal insufficiency presumably due to faulty absorption by the intestinal mucosa itself exists. A careful search should have been made for all underlying conditions which could produce these symptoms.

Children with "celiac disease" or idiopathic intestinal malabsorption may ordinarily be easily managed by dietary therapy. Most severe forms can usually be successfully treated with ordinary skim milk, cottage cheese, lean meat and junket.

First give skim milk up to 8 ounces five times a day and add the other foods one at a time only as is required by increasing appetite. The diet should not be elaborated until the abdominal distention is receding, the stools have become more nearly normal and the child's appetite has improved. Infection requires immediate reduction of the diet to milk. Orange juice is usually tolerated. Any form of starchy carbohydrate food such as rice, potatoes, bread or pudding should be rigorously excluded from the diet until recovery is complete, often two or three years after the institution of treatment. Proceed cautiously with the simple foods enumerated and do not attempt too rapid progress and overtax the digestion of the child. If this principle is adhered to, a variety of simple foods are often tolerated, with the exception of starchy carbohydrates, which are the least tolerated of all. The items mentioned will provide ideal nutrition for a child, and there does not appear to be any advantage in diabetic foods which would compare unfavorably in nutritive content. Simple pureed vegetables would be the next item to be added when the foods listed have been well tolerated for a long period. No matter how poor the appetite, these things will be taken if offered in appropriate amounts and the diet adhered to in the face of the demanding and capricious appetite characteristic of these children during their difficult phase. Accessory food factors such as vitamin A, D, C and B complex should be provided in liberal amounts and are well tolerated in any acceptable preparation.

## PETROLEUM CARCINOGENICITY

To the Editor:—Are the following substances carcinogenic: (1) white petroleum jelly, (2) yellow petroleum jelly, (3) dark red veterinary petroleum jelly, (4) wool fat and (5) "aquaphor" (an ointment containing hydroxyl animal fats)?

A. F. Liber, M.D., Temple, Tex.

ANSWER.—It is not known that any of the five substances mentioned are carcinogenic, but neither can it be definitely stated that they are not. Under conditions of ordinary use, they are not recognized to have carcinogenic activity. Because of low intensity or delay in attaining full effects, such activity might, however, have been overlooked. No record of scientific tests is readily found except in the case of wool fat, which has been used as a vehicle for testing carcinogenic substances. Under certain conditions, it reduces their carcinogenicity. Petroleum jellies are obtained from petroleum. The chemical composition of crude petroleums varies greatly with their field of origin and so, apparently, does their carcinogenicity. The latter varies also with the subsequent treatment to which the products are subjected. Products derived from petroleums having a high content of polycyclic hydrocarbons and asphalts are theoretically most dangerous.

## ELECTRIC CONVULSIVE THERAPY

To the Editor:—With usual or modified electroshock treatment has damage to the optic nerve more than transitory irritation such as seeing colors and sparks been described?

Wladimir G. Eliasberg, M.D., New York.

ANSWER.—Neurologic complications following electric convulsive therapy are practically unknown. Even aggravation of previous neurologic conditions has not been observed. Patients taking "metrazol" (pentamethylenetetrazol) therapy report lightning flashes and streaks of fire before their eyes, but these sensations are avoided with the electroshock treatment. Subconjunctival hemorrhages are the only ocular complication reported resulting from electroshock therapy.

## SUDDEN DEATH IN INFANTS

To the Editor:—What are the usual pathologic findings in infants who die suddenly?

M.D., South Carolina.

ANSWER.—The pathologic findings in infants who die suddenly cannot be stated briefly. The causes of sudden death are probably numerous. The older assumption that sudden death was due to thymic enlargement, or the so-called status thymicolymphaticus, is no longer accepted. Some infants are smothered in bed by pillows or bedclothing. Occasionally, others are strangled by tapes, bands or cords becoming fastened about the neck. Others are asphyxiated by foreign bodies which become lodged in the trachea or bronchi. Sometimes the inhalation of fumes, acids or dusting powder causes asphyxiation. A common cause is the regurgitation of ingested food into the pharynx, followed by aspiration into the bronchi and lungs, causing suffocation and sudden death. Sometimes these patients die from an obscure and undiscovered visceral disorder. Pneumonia has been the cause of sudden death. Meningitis may be malignant and produce fatal outcome in young infants before the disease is recognized; the same is true in the case of foudroyant scarlet fever.

## CONTAMINATED WELLS

To the Editor:—The situation described in the query on "Contaminated Wells" (The Journal, Aug. 14, 1948) has occurred in slightly varying form on a number of occasions over the years. My colleagues and I have gathered the facts in a number of cases and have given such aid and advice as we could. The hazard to the owner of the well and the user of the water is not that of exposure to lead, but rather of the ingestion of gasoline. The use of drinking water even slightly contaminated with gasoline will result in chemical gastroenteritis, with varying degrees of acute irritation of the central nervous system. This syndrome will develop promptly and long before there would be any chance of absorbing lead in significant amounts, and the acute character of this type of illness, once it has been seen, is such as to impress on one, forcibly, the fact, so little recognized by physicians or laymen, that gasoline in the alimentary tract, as in other tissues of the body, is a dangerous material.

The fate of the tetraethyl lead in leaded gasoline that leaches into a well is somewhat variable with the circumstances. This lead compound, together with the dye in the gasoline, may be absorbed in the soil to such an extent that the original lead content of the gasoline is greatly reduced, perhaps to a negligible level. In any case, the lead compound, being insoluble in water, contaminates the water only to the extent of its presence in solution within the droplets of gasoline. The separation of the gasoline from the water automatically separates out the lead. Incidentally, the dose of lead which can be taken in by drinking water contaminated with leaded gasoline is negligible, as a little calculation will show. Tetraethyl lead rarely occurs in gasoline in concentrations in excess of 1 part in 1,260 parts by volume, and, even in high octane aeronautic fuels, the highest concentration is 1 part in 800. At this maximum concentration, the ingestion of 10 cc. of gasoline mixed into the water (a large, dangerous and highly distasteful dose) will result in the ingestion of but 12 mg. of lead. Such a dose of lead (as tetraethyl lead) would be wholly insignificant, unless repeated frequently, and frequent use of such water would be impossible because of the prompt and certain intervention of acute gasoline intoxication.

It is not practical, usually, to treat water from wells contaminated with gasoline (or petroleum) so as to make it potable. This can be done by letting the water stand until the gasoline separates, removing the separated gasoline and then filtering the remainder through activated charcoal. (Incidentally, these procedures will remove completely any tetraethyl lead which may be in the gasoline.) However, the means of accomplishing such filtration is inconvenient and expensive. It has been found possible, in several instances, to pump the water out of a well so completely and over such a period of time as to remove the contaminant from the seepage bed of the well, thereby restoring the well to its former state. Weeks or months of pumping out and discarding the water may be required, but it is well worth the trouble if the desired result can be obtained. Whether or not this procedure is feasible depends on establishing the source, and determining the probable quantity and spread, of the gasoline (or other petroleum product). The latter can usually be done through the cooperative efforts of the petroleum distributor or distributors whose products may be involved in suspicion.

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## PRESBYOPIA

To the Editor:—I am writing to take exception to your answer concerning presbyopia in the July 24 issue of The Journal, page 1176, to the inquiry of W. Q. Wolfson, M.D., of Chicago.

The inquirer asks whether presbyopia is influenced by hormonal controls. The answer given is excellent but not complete. Nearly all ophthalmologists have encountered patients whose powers of accommodation have suddenly decreased beyond the expected. On questioning patients, especially women, it is found that they are usually getting large doses of ovarian hormone in some form or other. Also, when this therapy is discontinued the accommodative effort returns to that patient's normal. In addition, a similar evidence is frequent in young boys to whom testicular hormone is given with the idea in mind of aiding in the descent of a testicle. I know of no research work done on this problem, but a clinical paper has been written: Mayer, L. L.: Effect of Diethylstilbestrol on Accommodation. Arch. Ophth. 32:133, 1944.

Leo L. Mayer, M.D., St. Louis.

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# TREATMENT OF PRIMARY ATYPICAL NONBACTERIAL PNEUMONIA WITH AUREOMYCIN

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Primary atypical nonbacterial pneumonia has been reported with increasing frequency during the past fifteen years.[1] This disease has since received particular attention. The intensive studies on disease of the respiratory tract conducted during World War II served to differentiate "primary atypical pneumonia" from similar pulmonary infections of established bacterial, viral or rickettsial causes.[2] Clinically, diseases caused by the viruses of influenza, psittacosis, ornithosis and the rickettsiae of Q fever resemble atypical pneumonia.[2] No causative agent has been isolated from patients suffering from this disease, although pooled sputum from patients has been shown to be capable of inciting the disease in human volunteers, even after it was passed through Corning sintered glass or Seitz filters.[3] At present, there is no specific laboratory procedure available for confirming the clinical diagnosis. It has been noted that cold hemagglutinins and agglutinins for Streptococcus MG often develop in the serum of patients during the course of this disease.[2b] The detection of these antibodies aids in the characterization of the disease, although their specific relationship to the pathogenesis of atypical pneumonia is unknown.

The diagnosis of primary atypical pneumonia is based chiefly on the following criteria:

1. The onset is usually gradual, with nonproductive cough, fever, headache, malaise, chilly sensations and occasionally substernal pain. The absence of initial chill, bloody sputum and abrupt onset aid in its differentiation from pneumococcic pneumonia.

2. Physical examination often reveals minimal signs in the chest which are out of proportion to the roentgen evidence of pulmonary consolidation.

3. Laboratory examinations usually show a low to normal leukocyte count. Pneumococci or other pathogenic organisms are frequently not isolated from sputum, throat or nasopharyngeal cultures or by mouse inoculations.

4. Serologic studies on serial serum specimens do not reveal the development of antibodies for recognized viral or rickettsial agents.

5. Treatment with sulfadiazine or penicillin is not associated with clinical or objective improvement in the uncomplicated case. Penicillin has been given in huge doses without influencing the course of the disease.

6. The appearance of cold hemagglutinins in the serum of patients for human group O cells or agglutinins for Streptococcus MG during the course of the disease or in convalescence has been noted in a variable proportion of cases in different series.

The diagnosis of primary atypical pneumonia is based on the history and signs of disease of the respiratory tract coupled with roentgen evidence of pulmonary involvement which cannot be associated with any of the known bacterial, viral or rickettsial agents of disease either by cultural or serologic study.

Recently, aureomycin, an antibiotic derived from cultures of Streptomyces aureofaciens,[4] has been shown to be an effective chemotherapeutic agent in various bacterial, rickettsial and viral infections of experimental animals and human beings.[5] The drug can be administered orally, is well tolerated and is relatively nontoxic. In the course of an extensive investigation to delimit the clinical application of aureomycin, it was noted that patients, ill with primary atypical nonbacterial pneumonia, manifested rapid defervescence and decided clinical improvement when treated with this drug.[5c] Further experience confirmed these earlier

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From the Department of Preventive Medicine, Johns Hopkins University School of Medicine.

Aureomycin (duomycin®) was supplied by the Lederle Laboratories Division American Cyanamid Company.

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Dr. George S. Mirick, Department of Medicine, Johns Hopkins University School of Medicine; Dr. Thomas G. Ward, Department of Bacteriology, Johns Hopkins School of Hygiene and Public Health, and Dr. Herald R. Cox, Lederle Laboratories, carried out various serologic procedures which were of inestimable value in characterizing these cases.

[1] Reimann, H. A., and Havens, W. P.: An Epidemic Disease of the Respiratory Tract, Arch. Int. Med. **65**: 138 (Jan.) 1940. Longcope, W. T.: Bronchopneumonia of Unknown Etiology (Variety x): Report of Thirty-Two Cases with Two Deaths, Bull. Johns Hopkins Hosp. **67**: 268, 1940. Kneeland, Y., Jr., and Smetana, H. F.: Current Bronchopneumonia of Unusual Character and Undetermined Etiology, **67**: 229, 1940. Finland, M., and Dingle, Medical Progress: Virus Pneumonias; Pneumonias Associated with Known Non-Bacterial Agents; Influenza, Psittacosis and Q-Fever, New England J. Med. **227**: 342, 1942. Dingle, J. H., and Finland, M.: Virus Pneumonias; Primary Atypical Pneumonias of Unknown Etiology, New England J. Med. **227**: 378, 1942. MacLeod, C. M.: Primary Atypical Pneumonia, M. Clin. North America **27**: 670, 1943.

[2] (*a*) The Present Status of the Etiology of Primary Atypical Pneumonia, Commission on Acute Respiratory Disease, Bull. New York Acad. Med. **21**: 235, 1945. (*b*) Horsfall, F. L., Jr.: Atypical Pneumonia, in Rivers, T. M.: Virus and Rickettsial Diseases of Man, Philadelphia, J. B. Lippincott Company, 1948, p. 287.

[3] Horsfall.[2b] The Transmission of Primary Atypical Pneumonia to Human Volunteers: I. Experimental Methods; II. Results of Inoculation; III. Clinical Features; IV. Laboratory Studies; Commission on Acute Respiratory Diseases, Bull. Johns Hopkins Hosp. **79**: 97, 1946.

[4] Duggar, B. M.: Introductory Paper, in Conference on Aureomycin—A New Antibiotic, Section on Biology, New York Academy of Sciences, July 21, 1948.

[5] Conference on Aureomycin—A New Antibiotic, Section on Biology, New York Academy of Sciences, July 21, 1948: (*a*) Wong, S.C., and Cox, H. R.: Action of Aureomycin Against Experimental Rickettsial and Viral Infections, (*b*) Bryer, M. S., and Schoenbach, E. B.: Treatment of Experimental Infections with Aureomycin, (*c*) Schoenbach, E. B.; Bryer, M. S., and Long, P. H.: Pharmacological and Clinical Studies with Aureomycin: Preliminary Report, (*d*) Finland, M.; Collins, H. S., and Paine, T. F.: Use of Aureomycin in Human Infections, (*e*) Wright, L. T.; Sanders, M.; Logan, A.; Prigot, A., and Hill, L. M.: Treatment of Lymphogranuloma Venereum and Lymphogranuloma Inguinale in Humans.

observations, and, despite the indeterminate causation of the disease, it is felt that aureomycin is a valuable chemotherapeutic agent in this disease.

### OBSERVATIONS AND RESULTS

A group of 13 consecutive patients was treated orally with the hydrochloride salt of aureomycin. The significant clinical and laboratory data for these patients are summarized in tables 1 and 2. The dosage of aureomycin employed and the response to therapy are presented in table 3.

Eight of these patients were female, and 5 were male. Their age distribution ranged from 10 years to 59 years. Twelve of these patients were deemed severely, but not gravely, ill when aureomycin therapy was instituted. One patient had been ill without evident clinical improvement for several weeks before treatment was begun. He was only moderately ill at that time. All the patients were civilians, and all were hospitalized.

Aureomycin therapy was begun on the second to twenty-first day of illness. Ten of these patients had received penicillin and/or sulfadiazine without manifest improvement. All patients had experienced a severe to moderate hacking nonproductive cough, headache and chilly sensations. The fever, preceding aureomycin therapy, varied between 101 and 105.2 F. In 9 patients, the temperature before treatment was 104 F. or higher. Many of the patients complained of nausea, associated with abdominal pain in 1 patient and with diarrhea in another. Signs of pulmonary inflammation were absent to minimal in 4 cases on physical examination. In the remaining 9 cases, clearly defined evidence of pneumonia, with dulness to percussion, rales and abnormal breath sounds, was elicited. Roentgenograms of the chest showed definite areas of infiltration in all

TABLE 1.—*Summary of Clinical and Laboratory Data in Atypical Pneumonia*

| | | | | Symptoms | | | | | | Physical Signs | | Laboratory Culture | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Case No. | Patient | Age | Sex | Cough* | Temperature | Headache† | Chills‡ | Sputum§ | Cyanosis‖ | Other¶ | Pulmonary# | Nose and Throat | Sputum** | Blood | White Blood Cells | Infiltration Seen in Roentgenogram |
| 1 | R. M. | 10 | F | 4+ | 105 | 4+ | 0 | 0 | 0 | Somnolent 2+ | Rales L.L.L.L. | Strep. alpha | ........ | Neg. (twice) | 4,800 to 7,600 | L.L.L.L. |
| 2 | J. S. | 14 | M | 4+ | 101 | 0 | 0 | 1+ | ± | None | Neg. | Beta and alpha Strep. | Staph. aureus, alpha Strep. | Neg. | 7,900 | U.L.R.L.<br>L.L.L.L. |
| 3 | F. K. | 31 | F | 4+ | 104.5 | 4+ | 4+ | 1+ | 0 | Abdominal pain, toxic | Rales M.L.R.L. U.L.R.L. | Alpha Strep., Staph. aureus | ........ | Neg. | 6,900 to 9,900 | U.L.R.L. |
| 4 | M. C. | 21 | M | 4+ | 105 | 4+ | 4+ | 0 | 4+ | Left-sided chest pain, toxic | ±<br>Neg. | Alpha Strep. beta Strep., Staph. aureus | Staph. aureus, Alpha Strep. | Neg. | 7,000 to 9,600 | U.L.L.L.<br>L.L.L.L.<br>L.L.R.L.<br>M.L.R.L. |
| 5 | S. L. | 28 | M | 2+ | 103 | 4+ | 4+ | 0 | 0 | Diarrhea, nausea 1+ | Neg. | Neisseria, alpha Strep. | ........ | Neg. | 5,400 to 9,300 | U.L.R.L. |
| 6 | N. M. | 19 | F | 4+ | 104.1 | 4+ | 4+ | 0 | 0 | Nausea 1+, toxic | Neg. | Neisseria, alpha Strep. | ........ | Neg. | 8,000 | L.L.L.L. |
| 7 | S. J. | 38 | F | 4+ | 103 | 4+ | 4+ | 0 | 0 | Nausea 1+ | Bronchial breath sounds L.L.L.L. | Neisseria, alpha Strep. | ........ | Neg. | 5,050 | L.L.L.L. |
| 8 | E. C. | 59 | F | 4+ | 104.4 | 4+ | 4+ | 0 | 4+ | Somnolent 4+, toxic | Dulness L.L.L.L. | Staph. aureus | ........ | Neg. | 6,100 | L.L.L.L.<br>U.L.L.L. |
| 9 | B. B. | 41 | F | 4+ | 104 | 2+ | 4+ | 0 | 0 | Nausea 2+ | Dulness and diminished breath sounds L.L.L.L. | Alpha Strep. | ........ | Neg. | 6,500 to 8,700 | L.L.L.L. |
| 10 | N. L. | 57 | M | 2+ | 104 | 4+ | 4+ | 0 | 0 | Nausea 2+ | Rales L.L.L.L. | Alpha Strep., Neisseria | Staph. aureus | Neg. | 7,200 to 25,000 | L.L.L.L.<br>L.L.R.L. |
| 11 | L. R. | 43 | F | 4+ | 104 | 2+ | 1+ | 0 | 0 | None | Tubular breath sounds L.L.L.L. | Alpha Strep, Neisseria | ........ | Neg. | 6,000 to 8,600 | L.L.L.L. |
| 12 | M. H. | 32 | F | 4+ | 105.2 | 4+ | 1+ | 0 | 0 | Nausea 2+, toxic | L.L.R.L. dulness and diminished breath sounds | Alpha Strep. | ........ | Neg. | 6,050 to 11,400 | L.L.R.L. |
| 13 | S. S. | 10 | M | 4+ | 102.4 | 2+ | 1+ | 0 | 2+ | Toxic nausea and emesis | Dulness and rales right lung base, dulness left lung base | Alpha Strep., Staph. aureus | Alpha Strep. | Neg. | 17,000 to 15,000 | U.L.R.L.<br>M.L.R.L.<br>L.L.R.L.<br>L.L.L.L. |

* 2+ indicates frequent paroxysms and 4+ severe exhausting paroxysms.
† 2+ is moderately severe and 4+ severe headaches.
‡ 1+ indicates mild chilly sensations at onset and 4+ repeated chilly sensations and pronounced sweating but no shaking chills.
§ 1+ indicates small amount of sputum, up to 4 cc. per day.
‖ ± indicates slight cyanotic appearance of lips and 4+ decided cyanosis of lips and extremities.
¶ Somnolent 2+ indicates moderate drowsiness and 4+ decided drowsiness, making the patient difficult to arouse; nausea 1+ indicates a slight degree and 2+ a moderate degree of nausea.
# L.L.L.L. is lower lobe left lung; M.L.R.L., middle lobe right lung, and U.L.R.L., upper lobe right lung.
** The symbol ........ indicates that no pneumococci or beta hemolytic streptococci were found.

patients which was usually far out of proportion to the physical signs. In 5 cases, roentgen examination revealed that more than one lobe was involved. Data in these cases are presented in table 1. It is interesting to observe that both lungs showed evidence of involvement in 4 patients.

The total blood leukocyte count preceding therapy was relatively normal. It ranged from 4,800 to 17,000 in this group, but only in 2 patients was the initial leukocyte count more than 10,000 per cubic millimeter of blood. Alpha streptococci, Neisseria, and Staphylococcus aureus were the only organisms obtained from

Table 2.—*Summary of Serologic Data in Atypical Pneumonia*

| Serologic Test *† | Week of Illness | Patient and Case Number | | | | | | | | | | | | | No. with Positive Reactions/ No. Examined |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | R.M. 1 | J.S. 2 | F.K. 3 | M.C. 4 | S.L. 5 | N.M. 6 | S.J. 7 | E.C. 8 | B.B. 9 | N.L. 10 | I.R. 11 | M.H. 12 | S.S. 13 | |
| Cold hemagglutinin titer | 1 | .. | .. | 0 | .. | 0 | 0 | .. | .. | 0 | 0 | 0 | 0 | .. | 0/ 7 |
| | 2 | .. | .. | 0 | 512 | 0 | 0 | 0 | 0 | 512 | 512 | 128 | 0 | 512 | 5/11 |
| | 3 | 256 | 0 | .. | .. | .. | .. | 0 | 0 | 512 | 256 | 1,024 | .. | 1,024 | 5/ 8 |
| | 4 | 512 | 0 | 0 | 512 | 0 | 0 | 0 | 0 | 256 | .. | 1,024 | 0 | 256 | 5/12 |
| Final interpretation | | Pos. | Neg. | Neg. | Pos. | Neg. | Neg. | Neg. | Neg. | Pos. | Pos. | Pos. | Neg. | Pos. | 6/13 |
| Streptococcus MG agglutinin titer (titer above 1:20 deemed significant) | 1 | .. | .. | 40 | .. | 0 | 0 | .. | .. | 40 | 0 | 80 | 0 | .. | 3/ 7 |
| | 2 | .. | .. | 40 | 40 | 0 | 0 | 40 | 0 | 20 | .. | 160 | 0 | 20 | 4/10 |
| | 3 | 0 | .. | .. | 640 | .. | .. | 80 | 0 | 80 | .. | 160 | .. | 40 | 5/ 7 |
| | 4 | 320 | 0 | 80 | 320 | 160 | 0 | 160 | 0 | 160 | 80 | 160 | .. | 80 | 9/12 |
| Final interpretation | | Pos. | Neg. | Pos. | Pos. | Pos. | Neg. | Pos. | Neg. | Pos. | Pos. | Pos. | Neg. | Pos. | 9/13 |
| Psittacosis (complement fixation) | 4 & 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .. | 0/13 |
| Q fever (complement fixation)‡ | 4 & 5 | 0 | 0 | 4§ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4§ | 0 | .. | 0/13 |
| Influenza antibody, type A | Final interpretation serial examinations | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | 0/13 |
| B | | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | 0/13 |
| (C.C.A.‖ inhibition) A′ | | Neg. | .. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | 0/12 |
| (Neg. = less than twofold rise) 0-5 | | Neg. | .. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | Neg. | 0/12 |

* The symbol .. indicates that a test was not made; and 0 indicates that the reaction was not positive at the lowest dilution tested (Strep. MG 1:10; psittacosis, Q fever and cold hemagglutinin 1:4).

† The titer is indicated by denominator only.

§ Subsequent specimens were negative.

‡ Reactions to complement fixation tests for epidemic and murine typhus and spotted fever were all negative. In case 13 the reaction to the spotted fever complement fixation tests were positive to a dilution of 1:10 in early and late specimens of serum.

‖ Chick cell agglutination.

Table 3.—*Summary of Aureomycin Therapy and Results Observed in Atypical Pneumonia*

| Case | | | Treatment | | | | |
|---|---|---|---|---|---|---|---|
| | | | | Aureomycin | | | |
| Case No. | Patient | Weight, Kg. | Previous | Day Initiated | Total Dose, Gm. | Dosage | Result |
| 1 | R. M. | 25 | None | 2 | 4.6 | 100 mg./1 hr.; 3 doses<br>100 mg./2 hr.; 2 days<br>100 mg./4 hr.; 3 days | Afebrile in 48 hours; roentgenogram cleared; coryza 13th day of illness without relapse |
| 2 | J. S. | 66 | Penicillin, streptomycin, sulfadiazine | 21 | 11.2 | 200 mg./1 hr.; 3 doses<br>200 mg./4 hr.; 9 days | Afebrile in 24 hours; roentgenogram almost clear 4 days; convalescence uneventful |
| 3 | F. K. | 52 | Penicillin | 6 | 4.9 | 200 mg./1 hr.; 3 doses<br>200 mg./2 hr.; 1 day<br>200 mg./6 hr.; 2 days | Temperature normal in 24 hours; convalescence uneventful |
| 4 | M. C. | 85 | Penicillin, sulfadiazine | 9 | 11.0 | 200 mg./1 hr.; 3 doses<br>200 mg./2 hr.; 2 days<br>200 mg./4 hr.; 4 days | Temperature normal in 72 hours; uneventful convalescence |
| 5 | S. L. | 68 | None | 4 | 3.8 | 200 mg./1 hr.; 3 doses<br>200 mg./2 hr.; 1 day<br>200 mg./6 hr.; 2 days | Temperature normal in 24 hours; uneventful convalescence |
| 6 | N. M. | 50 | Penicillin | 2 | 7.0 | 200 mg./1 hr.; 3 doses<br>200 mg./2 hr.; 2 days<br>200 mg./3 hr.; 2 days | Temperature normal in 24 hours; uneventful convalescence |
| 7 | S. J. | 56 | Penicillin | 7 | ... | 200 mg./1 hr.; 3 doses<br>200 mg./2 hr.; 1 day<br>200 mg./4 hr.; 4 days | Temperature normal in 24 hours; uneventful convalescence |
| 8 | E. C. | 82 | Penicillin, sulfadiazine | 7 | 7.6 | 200 mg./1 hr.; 3 doses<br>200 mg./2 hr.; 1 day<br>200 mg./4 hr.; 4 days | Temperature normal in 36 hours; uneventful convalescence |
| 9 | B. B. | 56 | Penicillin, sulfadiazine | 8 | 8.0 | 200 mg./1 hr.; 3 doses<br>200 mg./2 hr.; 2 days<br>200 mg./4 hr.; 3 days | Temperature normal in 24 hours; phlebitis |
| 10 | N. L. | 71 | Penicillin, sulfadiazine | 6 | 5.9 | 200 mg./1 hr.; 3 doses<br>200 mg./2 hr.; 1 day<br>200 mg./4 hr.; 1 day<br>100 mg./4 hr.; 5 days | Temperature normal in 24 hours; (?) thrombosis with rise in white blood cell count and temperature to 101 F. for 2 days |
| 11 | I. R. | 62 | Penicillin | 7 | 7.25 | 250 mg./1 hr.; 3 doses<br>250 mg./2 hr.; 1 day<br>250 mg./4 hr.; 3 days | Afebrile in 36 hours; convalescence uneventful |
| 12 | M. H. | 63 | None | 3 | 7.0 | 250 mg./1 hr.; 3 doses<br>250 mg./2 hr.; 12 hours<br>250 mg./4 hr.; 4 days | Afebrile in 12 hours; convalescence uneventful |
| 13 | S. S. | 30 | Penicillin, sulfadiazine | 10 | 3.7 | 100 mg./1 hr.; 3 doses<br>100 mg./2 hr.; 7 doses<br>100 mg./4 hr.; 2 days<br>100 mg./6 hr.; 2 days | Afebrile in 12 hours; convalescence uneventful |

cultures of nose or throat. Intraperitoneal inoculation of mice with sputum and nasopharyngeal blood broth cultures were negative for pneumococci in each case. Blood cultures taken before therapy were all sterile.

Serial specimens of serum were examined serologically.[6] They were tested for the antibodies associated with infection produced by influenza virus, psittacosis, Q fever, the agglutinins for Streptococcus MG and cold hemagglutinins. In 11 cases to date, repeated complement fixation tests with other rickettsial antigens (R. rickettsi R. mooseri, R. prowazeki and R. akari) were also performed, but all results were negative. The strains of influenza virus employed were types A (PR-8), B (Lee), A′ (Fort-Monmouth) and O-5 (type A isolated in Baltimore 1946 by Dr. Thomas G. Ward). None of the 13 patients examined showed a rise in influenza antibody titer as measured by the inhibition of red blood cell agglutination. All serums were negative for psittacosis, ornithosis and Q fever, as well as other rickettsial complement-fixing antibodies. Reactions to additional serologic tests, namely heterophil antibody and agglutinins for the enteric group, Brucella tularensis and Proteus $OX_{19}$ and $OX_2$, were negative.

The serologic data are summarized in table 2. In 6 of the 13 patients, high titers of cold hemagglutinins developed. Treatment with aureomycin in these cases was begun on the seventh to tenth day of disease, and the agglutinins appeared on the tenth to sixteenth day of illness. This proportion positive is similar to that noted for severely ill patients in other reported series.[7] Streptococcus MG agglutinations were positive (titer higher than 1:20) in 9 of 13 patients.

Only oral aureomycin was employed in this group of patients. An initial dose of 30 to 50 mg. of aureomycin per kilogram of body weight per day was employed. The usual schedule of drug administration consisted of a priming dose of 100 to 250 mg. every hour for three doses, followed by the same dosage of aureomycin every two hours until the patients become afebrile (rectal temperature 100 F. or less). Thereafter, the drug was given every four to six hours for two to five days (15 to 20 mg. per kilogram). Variation in this dosage schedule occurred when the drug was in poor supply. Patients treated on the second to twenty-first day of their illness became afebrile within twelve to seventy-two hours. Nine patients were afebrile within twenty-four hours after the institution of aureomycin therapy. Treatment was begun on the second to twenty-first day of illness (median sixth day). Three patients became afebrile within twenty-four to forty-eight hours, while 1 patient, with excellent clinical response, did not become afebrile until seventy-two hours after treatment. Treatment of these 4 patients was initiated on the second to ninth day of disease (median seventh day). The patient (M. C., case 4) who remained febrile for seventy-two hours after the institution of aureomycin therapy was extremely ill and cyanotic, and involvement of four lobes was noted on physical examination and in the roentgenogram of the chest.

Subjective clinical improvement coincided with lysis of the fever. The cough, however, persisted and improved only gradually. Weakness of varying degree was evident during convalescence. It was most pronounced in those patients in whom treatment was not instituted until the later days of disease. No patients relapsed after treatment with aureomycin was discontinued. One patient had an infection of the upper part of the respiratory tract with coryza, nasal congestion, and temperature readings to 101 F. one week after treatment had been discontinued. Roentgen examination revealed no evidence of pulmonary consolidation. A second patient while still under treatment had a low grade fever associated with a leukocye count up to 35,000 per cubic millimeter. He remained asymptomatic, and serial roentgenograms showed progressive resolution of the pulmonary lesions. Exhaustive study revealed no cause for the leukocytosis, which subsided during the next two weeks. It was believed that he had experienced venous thrombosis. His cold hemagglutinin titer became positive to a dilution of 1:512 coincident with this episode. No such hematologic response has been noted in over 80 patients or in 5 normal persons treated with aureomycin. A third patient presented evidence of mild bilateral femoral vein phlebitis without elevation of temperature on the twelfth day of disease. She had been afebrile for three days. Cold hemagglutinins, which had been normal two days previously, rose to 1:512 on the day that the venous tenderness was detected. In all other patients, convalescence was uneventful and serial roentgenograms showed progressive resolution.

## REPORT OF CASES

The following abstracts of the course of several representative patients are presented to illustrate this experience.

Case 3.—*F. K., a 31 year old white woman, became ill with* nonproductive cough, headache and fever. She experienced chilly sensations but no shaking chills. Her oral temperature varied between 100 and 103 F. with symptomatic and antipyretic therapy, which was employed for one day. During the next three days, crystalline penicillin G, 300,000 units daily, was administered intramuscularly without effect and her temperature remained elevated. A leukocyte count was 9,500 on the fourth day of illness. She was admitted to the Sinai Hospital, Baltimore, on the following day.

On admission, the patient appeared acutely ill, with temperature 104 F. (rectal), pulse rate 132 and paroxysmal nonproductive cough. Dulness to percussion and bronchovesicular breath sounds were heard over the right anterior side of the chest, and occasional crepitant rales were audible in this area. Tenderness of the right lower quadrant of the abdomen was noted, and the patient had vomited on one occasion.

Hematologic examination showed: hemoglobin 13.3 Gm. per hundred cubic centimeters and total leukocytes 9,900 per cubic millimeter, with a differential count of polymorphonuclear neutrophils 82 per cent, lymphocytes 16 per cent and monocytes 2 per cent. The corrected sedimentation rate was 41 mm. (Wintrobe). Repeated examinations of the urine of the chemical content of the blood and serologic tests showed normal results. Blood culture was sterile. Nose, throat and nasopharyngeal cultures showed only the presence of Streptococcus viridans and a few colonies of hemolytic Staph. aureus. No pneumococci were detected even by mouse inoculation. Results of roentgen examinations and specific agglutinations are presented in figure 1.

Aureomycin therapy was begun on the afternoon of the sixth day of disease, when her temperature was 104.2 F. (rectal). Within twenty-four hours, it had fallen progressively to 99.8 F.

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[6] Influenza virus antibodies were determined by the technic of inhibition of red cell agglutination by Dr. Thomas G. Ward of the Department of Bacteriology, The Johns Hopkins University School of Hygiene and Public Health. Psittacosis and rickettsial complement fixation tests were performed by Dr. Herald R. Cox, of the Lederle Laboratories Division American Cyanamid Company. Dr. George S. Mirick of the Department of Medicine, The Johns Hopkins School of Medicine, tested the serums for Streptococcus MG agglutinins. Agglutination in a dilution of 1:20 was considered the upper limit found in normal serum with this latter antigen. Cold hemagglutinins were determined using human group O Rh negative fresh red blood cells in a final concentration of 0.3 per cent. These tests were run on two separate occasions, and no differences were noted. Mr. Abraham Prostic of the Sinai Hospital, Baltimore, assisted in these tests.

[7] Horsfall.[2b] *Morgan, H. R., and Finland, M.:* Serologic Findings in Patients with Primary Atypical Pneumonia, Am. J. Clin. Path. **18:** 593, 1948.

Symptomatic improvement was evident within twelve hours after therapy was begun. Aureomycin was administered for a total period of four days. Convalescence was uneventful, and the patient was discharged on the fourteenth day of her illness, four days after the aureomycin was discontinued. She was well except for mild paroxysms of coughing.

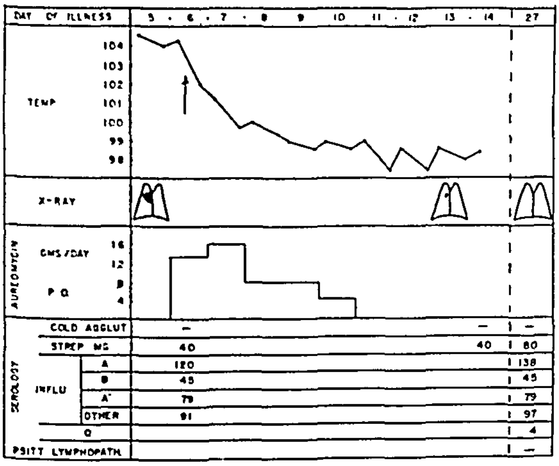

Fig. 1.—Chart of data in case 3 (F. K., female, age 31 years, weight 115 pounds [52 Kg.]).

Case 9.—B. B., a 41 year old white woman, had a paroxysmal nonproductive cough associated with temperature readings up to 101 F. Two days after onset her temperature rose to 104 F. and sulfonamide drug and penicillin therapy was instituted. The cough, headache and fever persisted, and the patient was referred to the Sinai Hospital, Baltimore, on the fourth day of illness.

On admission, the patient was acutely ill with a hacking nonproductive cough, temperature 103 F. (rectal), pulse rate 100 and respirations 28. Impaired breath sounds and slight dulness to percussion were noted at the left lung base. The total leukocyte count was 6,500, with the following differential count: polymorphonuclear neutrophils 76 per cent, lymphocytes 17 per cent and monocytes 7 per cent. Results of examination of the urine, stool and chemical content of the blood were normal.

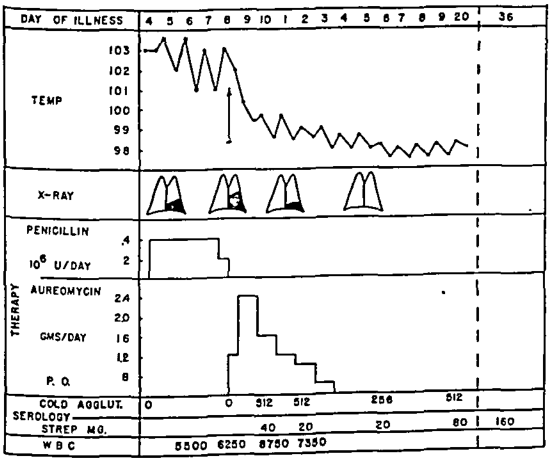

Fig. 2.—Chart of data in case 9 (B. B., female, age 41 years, weight 128 pounds [58 Kg.]).

She was treated with penicillin, 400,000 units daily for three and one-half days, but her daily temperature persisted at 103 to 103.6 F. On the afternoon of the eighth day of illness, aureomycin therapy was instituted. Within twenty-four hours the temperature had fallen to 99.4 F. (rectal), and she remained afebrile. Her course and pertinent laboratory studies are presented in figure 2.

Case 11.—I. R., a 43 year old white woman, had had intimate contact ten to nineteen days before her illness with her sister (B. B., case 9). She became ill with headache, nonproductive cough, chilly sensations and temperature reading of 104 F. (oral). The fever and cough persisted despite penicillin therapy, 100,000 units every four hours, plus caronamide for three days. She was admitted to the Sinai Hospital, Baltimore, on the fourth day of her illness.

On admission, she was acutely ill. Her temperature was 103 F. and pulse rate 92. She was not cyanotic. Dulness and diminished tactile fremitus were noted in the left lung base posteriorly. Breath sounds were somewhat diminished in this region. The total leukocyte count was 6,050, with a differential distribution of polymorphonuclear neutrophils 86 per cent, lymphocytes 9 per cent and monocytes 5 per cent. Sedimentation rate was 40 mm. corrected (Wintrobe). Blood culture was sterile and nasopharyngeal and throat cultures showed only Neisseria. Mouse inoculation was negative for pneumococci. Results of examination of the urine, stool and chemical content of the blood were normal. Results of roentgen examinations and pertinent laboratory data are presented in figure 3.

Despite the lack of response to penicillin and the known exposure to primary atypical pneumonia, further trial of penicillin was deemed indicated. She received 400,000 units of penicillin G intramuscularly daily for three days without evidence of subjective or objective improvement. Oral aureomycin therapy was begun on the afternoon of the seventh day of illness, and her temperature was normal on the following day. Convalescence was uneventful. Treatment was discontinued after five days, and she was discharged as well six days later.

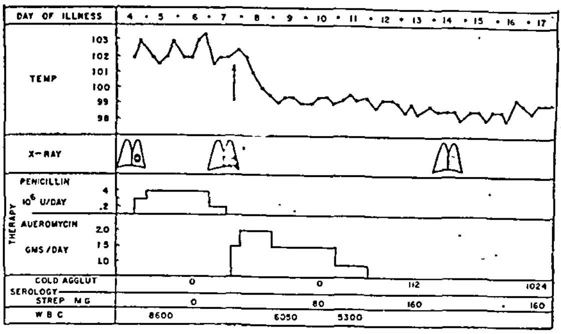

Fig. 3.—Chart of data in case 11 (I. R., female, age 43 years, weight 136½ pounds [62 Kg.]).

## COMMENT

Primary atypical pneumonia is a disease of the respiratory tract which can be differentiated from many similar clinical entities only by exclusion. In this series of patients bacteriologic examinations did not disclose any of the organisms usually associated with bacterial pneumonia. Serologic studies did not confirm influenza virus, psittacosis-lymphogranuloma virus, or the rickettsiae of Q fever, spotted fever, typhus or rickettsialpox as causative factors. Significant cold hemagglutinin titers and agglutination of Streptococcus MG were obtained in 46 per cent and 69 per cent, respectively, of these cases. The titers obtained with these two tests have varied significantly in different series. It has also been apparent that the proportion of positive titers and the proportion of patients found with positive reactions to these tests can be correlated with the severity and duration of the disease. The effect of chemotherapy, with the resultant rapid arrest of the disease, on the development of these agglutinins has not been ascertained. Cabasso and Cox have demonstrated that when embryonated hen's eggs are infected with mumps virus and treated with 2.0 mg. of aureomycin twenty-four hours thereafter, the virus proliferates but does not exhibit red blood cell agglutination. Subinoculation of untreated eggs yields virus with characteristic hemagglutinive properties.[8]

The 13 consecutive patients ill with primary atypical pneumonia who were treated with aureomycin have manifested a striking clinical response. The great variation in the clinical course of patients ill with primary atypical pneumonia of unknown cause is well understood. It should be emphasized, however, that all but 1 of the patients in this group were severely ill and all required hospitalization. This group differs in its composition from the reported series of cases among military personnel, of which only a small proportion was considered severely ill. The possibility, that the prompt response to treatment observed in each patient of this unselected consecutive series was purely fortuitous appears remote. Nine of these patients had received penicillin and/or sulfadiazine in dosages usually deemed adequate, without any apparent response. Prompt clinical improvement was noted soon after therapy with aureomycin was instituted. No inherent antipyretic effect has been observed with this antibiotic in typhoid or certain other febrile diseases.[9]

The amount of aureomycin used and its schedule of administration were empirically determined as a result of previous experience with the treatment of numerous types of infections. The drug was well tolerated. Nausea, which was present in 6 of these 13 cases prior to therapy, did not interfere with the oral dosage schedule. With the amount of aureomycin used in this series, nausea abated on treatment and was not noted in the other patients. In the treatment of other infections, when larger doses were given for more prolonged periods, nausea and anorexia attributable to aureomycin were encountered. This reaction was usually decidedly alleviated by use of aluminum hydroxide preparations. Several of the patients in this series complained of mild drowsiness. No neurologic abnormalities, nystagmus, vertigo, tinnitus or auditory disturbances were observed. The 1 patient who had transient fever and leukocytosis while receiving treatment has already been described. No similar reaction has been noted in over 80 patients treated with aureomycin, and at present it appears unlikely that this complication can be attributed to the drug.

The observations in these 13 patients would indicate that aureomycin is an effective chemotherapeutic agent for the treatment of primary atypical nonbacterial pneumonia.

### SUMMARY

Thirteen patients with primary atypical nonbacterial pneumonia were treated with aureomycin. The results have been sufficiently encouraging to indicate that this drug is an effective chemotherapeutic agent for this disease. No specific causative agent could be demonstrated for this series of cases of primary atypical pneumonia. Cold hemagglutinins were present in 46 per cent of this series, and agglutinins for a strain of Streptococcus MG were demonstrated in 69 per cent of the cases.

### ADDENDUM

A total of 18 completely studied patients have been treated to date (Jan. 5, 1949). Cold hemagglutinins were present in 50 per cent and agglutination for Streptococcus MG was positive in 75 per cent of these patients. Other studies have not indicated any specific cause. The response of these patients has been similar to that of the patients reported herein.

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[8] Cabasso, V., and Cox, H. R.: Personal communication to the authors, Nov. 30, 1948.

[9] Personal observations.

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# MANAGEMENT OF OCCIPUT POSTERIOR POSITION

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In the past twenty years, the literature on the management of the occiput posterior position has been voluminous and varied. The problem is still worthy of study, as any one practicing clinical obstetrics will agree. This presentation is based on private patients personally delivered by me for the years 1942-1947 inclusive and cared for in three Indianapolis hospitals, namely, St. Vincent's Hospital, Methodist Hospital and the Coleman Hospital of the Indiana University Medical Center.

All posterior positions may be divided into three groups as far as management is concerned: First, the largest group, constituting about 70 per cent of the total, in which rotation will occur spontaneously after engagement, with comparative ease in delivery, either spontaneously or with low or mid forceps. The only problem associated with this group is that of making it as large as possible by conservative handling of the entire group. Secondly, there is a small group of cases associated usually with enough pelvic contraction or disproportion so that even after hours of labor engagement does not occur; there is then persistent nonengagement of the head. Some of these may be classified with the first group after the second stage is reached; some will be of the third group, and in some abdominal delivery will be necessary, not because of the posterior position but because of disproportion. The third group consists of those cases in which engagement occurs but there is failure of rotation. These are the cases of so-called persistent occiput posterior position. It is in the handling of these cases that there is the greatest difference in opinion, and this is the group that I particularly wish to discuss. The size of this group will vary in different reports, depending on whether the author is radical or conservative regarding the length of the second stage of labor. Those of the former point of view advocate interference at the very beginning of the second stage, before there has been sufficient time for spontaneous rotation, while those of the latter wait for varying degrees of time in the second stage before interference, thus decreasing the number of patients requiring operative interference or assistance and lowering the station when it is necessary.

The type of operative interference also varies considerably in different communities and in different clinics, as well as with the skill of the operator. For instance, a patient with a persistent occiput posterior in New York is apt to be delivered with the Barton forceps. However, in Jersey City, N. J., she would likely be delivered by means of the Kielland forceps. If, however, she were in Buffalo, a version and extraction would be in order. Moving westward to Cleveland, she would either have a version and extraction or a Bill's modified Scanzoni maneuver. In Chicago, she would be treated by manual rotation or the key-in-lock maneuver.

### CAUSATION

The pelvis itself is of great importance in the occurrence of posterior position. Many times, the position occurs in borderline pelves, especially of the android

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type with narrow fore pelvis, or in pelves with inlet, midplane or outlet contraction, and, because of this, dystocia may be present. As Cosgrove[1] has pointed out, in these cases the primary problem is an evaluation of the asymmetry of the pelvis or the degree of cephalopelvic disproportion involved.

Many years before the birth of roentgenologic pelvimetry, the staff of the old Chicago Lying-in Hospital had recognized the high incidence of posterior position in a particular type of person, with an android pelvis. These persons are short and stocky and have short long bones, a wide symphysis, spade hands and girdle obesity. Horner[2] drew attention to them, and DeLee gave the name of dystrophia dystocia syndrome. Cornell[3] and Greenhill[4] have described their labors and emphasized the high incidence of associated posterior positions. Since then, Caldwell and Moloy[5] have shown the high incidence of posterior position in the android pelvis by means of their roentgenologic studies, while Thoms,[6] also, has pointed out the occurrence in the transversely contracted or anthropoid type of pelvis. While the incidence is highest in the android and anthropoid, it also occurs in the flat or platypelloid pelvis and in normal pelves.

In recent years, more traumatic pelves are seen as the result of automobile accidents. Some of these will show pronounced asymmetry and resultant occiput posterior positions. To consider the occiput posterior as a clinical entity and that alone as the cause of dystocia in these cases would be obviously fallacious and often disastrous.

In addition to variations in pelvic architecture, which D'Esopo[7] stated are responsible for about 90 per cent of cases of primary posterior position, other causes are anything that will prevent rotation of the head, either mechanical, such as prolapsed arm or fibroids, or deficient uterine activity. The angle of fetal axis toward the inlet and increased pelvic inclination are also considered factors.

## INCIDENCE

In 28,494 cases of labor, Stander[8] reported an incidence of 8.1 per cent cases of posterior position. Danforth[9] studied 1,565 private patients over a nine year period, examined early in labor, and found the incidence to be 27.1 per cent, the right posterior being observed 6.7 times more frequently than the left. Calkins[10] reported an incidence of posterior position approaching that of anterior.

It is difficult to obtain an accurate incidence of posterior position, because many of the patients enter the hospital in advanced labor, examinations are usually abdominal and rectal and often the first examination is done by the intern. Because of this, I have not attempted to find the total number of our cases, as it would have been inaccurate. However, in each case of persistent posterior position the patient was carefully examined before delivery vaginally, and this number is accurate.

*Persistent Occiput Posterior Position.*—Cosgrove reported an incidence of 7.6 per cent, having 366 persistent posterior positions in 4,810 private cases. Danforth reported 143 cases of persistent posterior position in 1,565 deliveries, or 131 in the cases with vaginal delivery. Recently, Miles[11] listed 594 cases of persistent posterior position in a series of 2,601 private cases, an incidence of 22.4 per cent.

In this series, there were 106 cases of persistent posterior position in 2,922 deliveries, an incidence of 3.6 per cent. Of these cases, there were 72 instances of right posterior and 34 of left posterior position. In all, there was engagement of the head but failure to rotate. In addition, there were 17 patients during this interval for whom cesarean section was done when the occiput was in the posterior position and the head not engaged. These I would classify in group 2 or with persistent nonengagement of the head.

TABLE 1.—*Cases of Persistent Occiput Posterior Position*

| Year | No. of Deliveries | Persistent Occiput Posterior Position |
|---|---|---|
| 1942 | 415 | 12 |
| 1943 | 442 | 21 |
| 1944 | 428 | 10 |
| 1945 | 537 | 21 |
| 1946 | 553 | 20 |
| 1947 | 547 | 22 |
| Total | 2,922 | 106 (3.6%) |

## POSTERIOR POSITION IN PREGNANCY

During the last month of pregnancy, primary occiput posterior position is found when the head is felt over the inlet with the occiput palpated deep posteriorly and the cephalic prominence anteriorly on the opposite side. Either the back is palpated far over on one side or there may be difficulty in palpating the back, as, in some instances, the baby's back will almost coincide with the back of the mother, making the small parts of the baby directly in the midline or felt on both sides anteriorly. There may be a distinct groove seen transversely across the lower part of the abdomen, similar to that present when there is a full bladder or when there is threatened rupture of the uterus. Location of the fetal heart may vary. If it is on the same side as the fetal back, it is usually out to the flank, but in case of deflexion, the baby's chest is thrust forward and the fetal heart may be heard loudest on the side opposite the back.

After diagnosis has been made, and certainly if there is any possibility of pelvic contraction, measurements should be checked with roentgen pelvimetry. By seeing the patient first walk in, one can usually identify the pelvis of the dystrophia dystocia syndrome.

Pregnancy itself is apt to be prolonged, these patients often going two or more weeks past the estimated day of delivery. While I may occasionally attempt to start labor with a dose of castor oil followed with a hot enema, it is my policy not to induce labor mechanically unless the pelvis is ample, the head engaged and the indication definite.

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[1] Cosgrove, S. A.: Occipito Posterior Positions, Am. J. Obst. & Gynec. **31:** 402, 1936.

[2] Horner, D. A.: Bradytocia: Study Based on Five Hundred Cases in Chicago Lying-in Hospital, Surg., Gynec. & Obst. **44:** 194, 1927.

[3] Cornell, E. L.: Dystocia Dystrophia Syndrome, in Davis, C. H.: Gynecology and Obstetrics, Hagerstown, Md., W. F. Prior Company, Inc., 1935, vol. 1, chap. 15, p. 43.

[4] Greenhill, J. P.: The Dystrophia Dystocia Syndrome as an Indication for Cesarean Section, S. Clin. North America **4:** 811, 1924.

[5] Caldwell, W. E., and Moloy, H. C.: Anatomical Variations in the Female Pelvis and Their Effect in Labor with a Suggested Classification, Am. J. Obst. & Gynec. **26:** 479, 1933. Caldwell, W. E.; Moloy, H. C., and D'Esopo, D. A.: Roentgenologic Study of Mechanism of Engagement of the Fetal Head, ibid. **28:** 824, 1934; Further Studies on the Mechanism of Labor, ibid. **30:** 763, 1935.

[6] Thoms, H.: A Type of Pelvis Intimately Associated with the Occipitoposterior Position, Surg., Gynec. & Obst. **56:** 97, 1933.

[7] D'Esopo, D. A.: The Occipitoposterior Position: Its Mechanism and Treatment, Am. J. Obst. & Gynec. **42:** 937, 1941.

[8] Stander, H. J.: Text Book of Obstetrics, New York, D. Appleton-Century Company, Inc., 1945, p. 325.

[9] Danforth, W. C.: The Treatment of Occipitoposterior Position with Especial Reference to Manual Rotation, Am. J. Obst. & Gynec. **23:** 360, 1932; The Management of Occiput Posterior—A Further Consideration of Manual Rotation, ibid. **28:** 756, 1934.

[10] Calkins, L. A.: Occiput Posterior: Incidence, Significance and Management, Am. J. Obst. & Gynec. **38:** 993, 1939; Occiput Posterior: A Normal Presentation, ibid. **43:** 277, 1942.

[11] Miles, L. M.: The Elective Use of Kielland Forceps in Management of Occipito Posterior and Occipito Transverse Positions, Am. J. Obst. & Gynec. **55:** 504, 1948.

### CHARACTER OF LABOR

Labor in persistent posterior positon is generally slower and longer, especially in those cases in which there are firm cervices and poor labor pains. In 20 of the 106 cases there was prolonged labor, i. e., labor more than twenty-four hours. In 6 of these cases, there was *a preliminary stage characterized by irregular pain* without actual effacement and dilatation, but accompanied with enough pain to exhaust the patient. Obviously, if this occurs, the patient must have rest, and often sedation is followed by much stronger pains which accomplish work. Rupture of the bag of waters is often early. The head stays high longer than in anterior position, and there is less flexion. The head may enter the pelvis in the transverse diameter and then rotate to the posterior, or it may have been in primary posterior position and entered in one of the oblique diameters with the occiput posterior. The occiput may rotate to the hollow of the sacrum, or it may rotate to the anterior only to stop as a deep transverse arrest. In 1 of the patients, a 36 year old primigravida, after twenty-eight hours of first stage labor and one hour of second stage, the head descended and spontaneous rotation occurred, enabling delivery to take place by low forceps and, thus, putting her in our first group rather than in the third group. Rotation may not occur until the head is on the pelvic floor, but *may occur any time after the spines* have been reached or at station 0. In occipitosacral position, spontaneous delivery may occur, and, if so, it does by one of two mechanisms. The first is one with flexion; the region just anterior to the large fontanel or the forehead stems under the symphysis, and the occiput goes either through or over the perineum. The second mechanism is with the base of the nose under the pubis, the forehead taking the lead much as in cases of brow presentation.

TABLE 2.—*Parity of Patients Having Persistent Occiput Posterior Position in the Three Hospitals*

| | Hospital | | | |
|---|---|---|---|---|
| Parity | St. Vincent's | Methodist | Coleman | Total |
| P I | 18 | 27 | 25 | 70 |
| P II | 8 | 9 | 6 | 23 |
| P III | 4 | 3 | 0 | 7 |
| P IV | 2 | 4 | 0 | 6 |

### MANAGEMENT

Calkins has done much to alleviate fear of the posterior position by showing that the position in itself *should be regarded* as a normal one and labor so treated, provided that the condition of mother and baby remains good and there is continued progress.

Thirty out of 70 primiparas with persistent posterior position showed nonengaged heads at the first examination during labor. Diagnosis of disproportion is more difficult with the occiput posterior position, and, unless the pelvis is highly contracted, a trial of labor should be given. If the head remains high, it is wise again to check the pelvis and, if it has not been done previously, to make a roentgen pelvimetric examination. It is often helpful, but the ordinary roentgenogram gives little information. If the pelvis seems adequate, then the treatment is one of watchful expectancy.

Station correctly diagnosed is just as important as dilatation; yet, in the various reports on posterior position, one seldom is given the exact station of the presenting part, so that it is often impossible to tell whether operative procedures are done when the head is engaged or when it is still unengaged. I employ the station as suggested by DeLee[12] whenever the lower portion of the head, exclusive of the caput, is at the level of the ischial spines, the station is 0 and engagement has just occurred. Because of excessive molding and long caput, it is possible for the caput to be in the midpelvis and with the biparietal diameter of the head above the brim. Inaccurate diagnosis of station is, I am sure, one of the reasons for failure of forceps operations, when they should never have been attempted in the first place. It is true that at —1 station one may drag the baby's head into the pelvis with success, but good obstetrics dictates the use of the forceps only after engagement has occurred. Stations of all these persistent posterior heads are given in table 3, and these are the stations at which the patients were first seen in the hospital early in labor.

Sedation during the first stage is imperative. For the patient having the first baby, there is no better sedative than morphine. During the war years, most patients were given pentobarbital sodium (nembutal®), 6 grains (0.4 Gm.) and this was supplemented as needed with ether given rectally. Recently I have been using more meperidine hydrochloride with scopolamine hydrobromide. Recently Hingson and others[13] *listed* among the dangers and limitations of continuous caudal analgesia the increased incidence of occipitoposterior position. If mother and baby remain in good condition, there *must not be interference in the first stage.* To attempt to convert the head to an anterior position or to do version in the presence of a partially dilated cervix is inviting trouble.

I also believe that there should be no interference, even though progress is slow, until after two hours of second stage pain or one hour with the head on the perineum. In some cases, the head will come only to the midpelvis. In this series, 85.7 per cent of the primiparas and *72.2 per cent of the multiparas were* permitted a second stage of two hours or more. Fetal *heart tones are watched carefully. In some mothers,* dehydration will occur and dextrose may be given intravenously for food and fluid.

TABLE 3.—*Station of the Head in Early Labor*

| Station | Primigravida | Para II | Para III | Para IV |
|---|---|---|---|---|
| —4 | 2 | 0 | 0 | 0 |
| —3 | 7 | 1 | 0 | 0 |
| —2 | 7 | 1 | 2 | 2 |
| —1 | 14 | 7 | 2 | 2 |
| —0 | 22 | 5 | 1 | 1 |
| +1 | 10 | 7 | 1 | 1 |
| +3 | 6 | 1 | 1 | 0 |
| +3 | 2 | 1 | 0 | 0 |
| +4 | 0 | 0 | 0 | 0 |

If progress has stopped after two hours of complete dilatation with the head in the midpelvis or on the perineum, I believe that in the majority of cases the ideal treatment is manual rotation followed by forceps. Kushner and Wahrsinger[14] stated, "Manual rotation of the head followed by forceps application for extraction very frequently is a failure because of the difficulty in keeping the head in the anterior position while applying the blades." My experience has been so different from this, that, after twenty years, I still believe that there is no instrument which can rotate the head in any position of the pelvis with so little chance of damaging mother and baby as the human hand.

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[12] DeLee, J. B., and Greenhill, J. P.: Principles and Practice of Obstetrics, ed. 9, Philadelphia, W. B. Saunders Company, 1947, p. 234

[13] Hingson, R. M.; Edwards, W. B.; Lull, C. B.; Whitacre, F. E., and Franklin, H. C.: Newborn Mortality and Morbidity with Continuous Caudal Analgesia, J. A. M. A. **136**: 221 (Jan. 24) 1948.

[14] Kushner, J. I., and Wahrsinger, P. B.: The Kielland Forceps for Use in the Occipito Posterior and Occipito Transverse Positions, Am. J. Obst. & Gynec. **52**: 110, 1946.

If the condition of the baby demands interference early in the second stage and the head is high at —1 station, version is safer than forceps with the head not engaged, but just a little more time may make considerable difference in station. If one does a version, one must always be sure there is no obstruction and no contraction ring.

If pains are not strong, one can occasionally permit a patient to go several hours in the second stage, but there is always the possibility of development of a contraction ring. In 1 case I delivered the patient twelve hours after delivery had been attempted in another town, the patient entering the hospital here exhausted and with complete dilatation but poor pain. She was given rest and fluids for six hours after admission, before delivery was effected by manual rotation and low forceps.

Table 4.—*Management of Persistent Occiput Posterior Position in This Series*

| Year | Manual Rotation Followed by Forceps | Bill's Modified Scanzoni | DeLee Key-in-Lock | As a Posterior (Occipitosacral) Position |
|---|---|---|---|---|
| 1942 | 12 | 0 | 0 | 0 |
| 1943 | 19 | 1 | 1 | 0 |
| 1944 | 9 | 0 | 0 | 1 |
| 1945 | 20 | 0 | 1 | 0 |
| 1946 | 19 | 1 | 0 | 0 |
| 1947 | 21 | 0 | 0 | 1 |
| Total | 100 | 2 | 2 | 2 |

*Technic of Manual Rotation.*—The patient is placed on the delivery table with buttocks well over the end of the table. Ether anesthesia was used in each case. After preparation and draping, the bladder is catheterized. Following this, a rather deep left mediolateral episiotomy is done and the whole hand is placed in the vagina and the position of the baby checked. Because of excessive molding of the head, it is often impossible to be sure of fontanels and sutures, so that one may search for an ear. The back of the ear will point to the occiput. The latter also can be verified by passing the hand upward along the occiput as this has an entirely different shape than the forehead. If a right occipitoposterior position is present I prefer to use the left hand internally, and if a left occipitoposterior position is present the right hand is used.

After certain identification of the occiput is made, the hand grasps the baby's head with the occiput in the hollow of the hand, and rotation of the head is effected by simple pronation of the hand, the occiput thus turning approximately 135 degrees to come under the symphysis. At the same time, the head is flexed.

If a left occipitoposterior position is changed by rotation to a left occipitoanterior position by means of the right hand, the latter holds the head from slipping back posteriorly and the left blade of the forceps is applied with the right hand in place. The hand is then removed and the right blade applied. If the occiput has remained anterior, then the baby is delivered by forceps exactly as in a primary anterior position. I prefer the DeLee modified Simpson forceps.

If the position is a right occipitoposterior, the left hand is used to do the rotation; I prefer to place the right blade of the forceps first, because its presence tends to prevent rotation back to the posterior position.

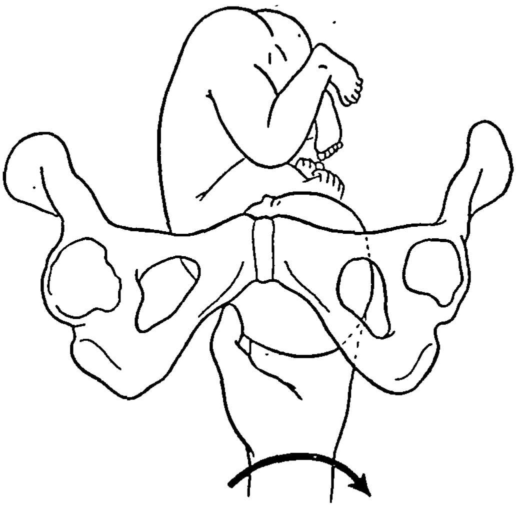

Fig. 1.—Drawing depicting manual rotation from the right occipitoposterior position.

In case the occiput does rotate posteriorly before the blades can be applied or locked, then external pressure on the forehead by an assistant with the hand above the symphysis will usually suffice to maintain rotation. If, however, this is not successful, the internal hand can, in addition to rotation of the head, also rotate the back by pressure on the posterior shoulder. Abdominal pressure may be used on the anterior shoulder to help rotation. Shoulder pressure was not necessary in any of these reported cases. If the shoulder and back are rotated, there is not the tendency of the occiput to rotate back to the posterior quadrant. If the head is displaced upward to a considerable degree, which is sometimes necessary, there is always danger of a prolapsed cord. This happened twice in this series, but no harm was done.

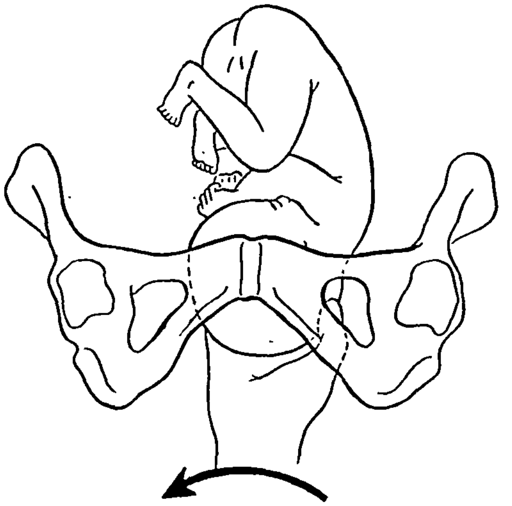

Fig. 2.—Drawing depicting manual rotation from the left occipitoposterior position.

Figure 1 illustrates rotation of a right occipitoposterior position and figure 2 rotation of a left occipitoposterior position.

*Rotation by Forceps.*—Rotation can be accomplished by the Scanzoni or Tarnier method, which has been improved by Bill[15] of Cleveland. The latter's results are excellent, but he reports version on over half of his cases of persistent occiput posterior position.

DeLee[16] has also described a type of forceps rotation which he termed the key-in-lock maneuver. This consists in application of the blades with the front to the sinciput and gradual rotation of the head, a few degrees at a time, by pushing the head slightly upward, slight twist and then traction with repeated reapplication of the blades until the occiput is gradually brought to the anterior quadrant, from where it is extracted as in anterior position.

If the occiput can be rotated only to the transverse, then a parietal-malar application is necessary unless the Kielland or Barton forceps are used. Langman and Taylor[17] stated preference for the Barton forceps, particularly with high transverse arrest.

TABLE 5.—*Cases of Manual Rotation*

| Parity | Manual Rotation Followed by Midforceps | Manual Rotation Followed by Low Forceps |
|---|---|---|
| Primipara | 51 | 14 |
| Multipara | 8 | 27 |

TABLE 6.—*Weight of Babies Delivered by Manual Rotation and Forceps*

| Parity | Weight (Gm.) | Midforceps, No. of Cases | Low Forceps, No. of Cases |
|---|---|---|---|
| *Primipara* | 1,814-2,268 | 0 | 1 |
| | 2,268-2,722 | 0 | 2 |
| | 2,722-3,175 | 10 | 4 |
| | 3,175-3,629 | 23 | 5 |
| | 3,629-4,082 | 13 | 1 |
| | 4,082-4,536 | 4 | 1 |
| | 4,536-4,990 | 0 | 0 |
| | 4,990-5,443 | 1 | 0 |
| Multipara | 1,814-2,268 | 0 | 0 |
| | 2,268-2,722 | 1 | 1 |
| | 2,722-3,175 | 3 | 2 |
| | 3,175-3,629 | 2 | 10 |
| | 3,629-4,082 | 0 | 8 |
| | 4,082-4,536 | 1 | 5 |
| | 4,536-4,990 | 1 | 1 |

Some obstetricians prefer to deliver some cases of occiput posterior position as occipitosacral, especially when the head is tightly wedged in the pelvis and the pelvis is of the anthropoid type. This was necessary twice in my series after failure of manual rotation. One was in a traumatic pelvis that was very questionable, but within five and a half hours of first stage pain and two hours of second stage the caput was visible, but station was only about plus 1 as there was tremendous molding of the head. Midforceps operation resulted in a 9 pound 3 ounce (4,167 Gm.) baby and a 3 degree laceration.

Because of long labor, with an exhausted patient and uterus, the dangers of postpartum hemorrhage must be kept in mind. Three of my patients required transfusion.

## MORTALITY AND MORBIDITY IN PERSISTENT POSTERIOR

In this group of 106 cases, there was no maternal or fetal mortality. Six patients showed morbidity according to the standard of American College of Surgeons. Causes were as follows: endometritis (1 case), cause unknown (1 case), pyelitis (2 cases), cystitis (1 case) and acute suppurative pyelonephritis (1 case). In the last case there was long labor; the patient passed blood from the bladder during the last of her labor and was hospitalized about six weeks.

## THE UNENGAGED HEAD

In addition to cases of persistent occiput posterior position, there is the group in which there is persistent nonengagement. These cases require careful study and evaluation of the pelvis. Several hours of labor may, however, decide the issue clearly. As previously mentioned, accuracy of station is of great importance. One can usually determine after a few hours of labor which cases will require cesarean section, because of the contracted pelvis with disproportion. With continued overriding of the head in a borderline pelvis and a failure of the Muller Hillis maneuver to bring the head to the spines, suspicion is warranted.

During the six year period covered in this analysis, there were seventeen cesarean sections, all low cervical, done when the occiput was in posterior position. Three of these were of the elective type, one done because of borderline pelvis, the patient being a 43 year old primipara who formerly presented a sterility problem, another with severe toxemia and the third with definite disproportion plus a rheumatic heart. Fourteen were done after trials of labor, varying from fourteen to forty-eight hours, and, in my judgment, all needed cesarean section and would also have needed cesarean section if the position had been anterior. There was no maternal mortality, and 1 baby in this group was stillborn.

## SUMMARY AND CONCLUSIONS

In the greatest number of cases of occiput posterior position, rotation will spontaneously occur and the patient be delivered with comparative ease. In cases of persistence of the unengaged head after several hours of labor, definite inlet obstruction is usually found. In my hands, manual rotation and forceps continues to be the most satisfactory means of dealing with the persistent occiput posterior position. One hundred out of 106 patients were so treated. The technic used is given. A reasonable duration of second stage is urged; so that the number of cases of persistent posterior position will be held to a minimum.

## ABSTRACT OF DISCUSSION

DR. E. L. CORNELL, Chicago: Occiput posterior positions are much more frequent than formerly supposed. One sees the patient today earlier in her labor, because of better prenatal instruction. In many, the rotation to the transverse and anterior positions take place relatively early in the first stage. Thus many posterior positions are missed if the patient is first seen after labor is well established. I am pleased to note that Dr. Gustafson does not induce labor in dystocia dystrophia. In my opinion it is nearly always fatal to do so. The patients will be much better off if allowed to go into labor spontaneously, when they will either deliver promptly or require radical treatment. As Dr. Gustafson has indicated, the diagnosis of the location and position of the head is of extreme importance. It is only thus that disaster is avoided. Terrible lacerations of the vagina and damage to the fetal head follow if this rule

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15. Bill, A. H.: The Treatment of the Vertex Occipito Posterior Position, Am. J. Obst. & Gynec. **22**: 615, 1931.

16. DeLee, J. B.: The Treatment of Occiput Posterior Position After Engagement of the Head, Surg., Gynec. & Obst. **46**: 696, 1928.

17. Langman, L., and Taylor, H. C., Jr.: The Selection of Forceps for Mid Pelvic Arrest of the Vertex, J. Obst. & Gynec. **52**: 773, 1946.

is not observed. Since the advent of analgesia, the suffering formerly seen in the first stage of labor can be avoided. Now time can be safely taken for the first stage of labor. I still do not use morphine as the sedative, except in the occasional case, because of its effect on the respiratory apparatus of the fetus. I would advise the use of barbiturates or meperidine hydrochloride in adequate dosage. Dr. Gustafson did not mention intact membranes, after dilatation is complete, as a cause for the delay in the rotation of the head anteriorly. I have made it a practice to rupture the membranes artificially when dilatation is complete; thus the full force of the uterine contraction is utilized to cause the head to descend and to rotate. It often shortens the labor and converts the delivery to a simple procedure. The membranes should not be ruptured if version and extraction are under consideration, because the liquor aminii may be all drained away. Manual rotation of the head should be accomplished without disengaging it. I have found it possible in the large proportion of cases to rotate the head by placing two fingers in the upper lamboid suture and exerting pressure upward in the wide arc of the circle. Rotation by forceps, no matter what make, is fraught with the danger of lacerating the vagina badly. It is not the operation of choice for the occasional obstetrician. I make a plea for the patient and the consulting obstetrician: Please do not interfere with progress of labor; support the patient with liquids and easily digestible food. Call the consultant early before the case becomes hopeless with respect to the baby.

Dr. Gerald Rogers, Oklahoma City: The more patients I see, the more I am led to the conclusion that the primary occurrence of occiput posterior position, as well as its abnormal persistence, necessarily implies the existence of some degree of bony pelvic asymmetry, deformity or cephalopelvic disproportion. Occiput posterior position is not necessarily and per se a definite pathologic entity; it becomes pathologic by reason of its persistence, and the cause is practically always an anomaly of pelvic architecture. Therefore, the problem of management should be predicated on the existence and nature of bony dystocia rather than primarily on the troublesome position caused thereby. The most important phase in management consists in competent antenatal estimation of the pelvic capacity or adequacy, taking account not only of the inlet but particularly of the midplane and the outlet. Roentgenographic mensuration should be increasingly utilized in estimating the borderline and definite contractions. There is no substitute for manual pelvimetry and no argument but that the fetal head is the most practical pelvimeter in the final analysis. I agree that manual rotation of the occiput is the simplest and safest method, with due precaution to prevent its dislocation from the pelvis and possible prolapse of the cord. Surgical anesthesia—I prefer cyclopropane with oxygen—adequate exposure and free mobilization of the head, usually with medicinal soft soap, facilitate all attempts at rotation. My geographic training prescribes the DeLee-Simpson forceps wherever forceps are indicated. I use the key-in-lock maneuver. I wish to congratulate the essayist on his conservatism and his morbidity, rate; especially I agree that there can be no fixed rules governing the length of time to wait in the second stage. If the position of the head is abnormal, if progress is arrested, this may be corrected earlier than the traditional two hours, and much may be gained by correcting the position and delivering the patient. I would not have any feeling of satisfaction if the head had finally rotated spontaneously after four or five hours of hard second stage labor, knowing that I could have corrected this in a few minutes several hours previously.

Dr. Buford G. Hamilton, Richmond, Mo.: It is evident that the obstetricians' problems are in keeping with the population of their special section of the country. I have observed that reports of obstetric problems in the thickly populated areas with a large foreign group are different from the Kansas City area. Western Missouri and Eastern Kansas are agricultural areas, with little or no segregated areas, with wide open spaces, with a typical American population and a small foreign population and with possibilities of a generous balanced diet for all. Thus a pelvic problem is seldom encountered there. The problem relates to the cervix and, in a few cases, the lower uterine segment. The type of pain with both large and small babies concerns each of us. Roentgen pelvimetry is followed in all doubtful cases and in all cases of delayed labor. Roentgen pelvimetry will be disappointing until such a time as the various national obstetric and gynecologic societies jointly establish a standard of roentgen pelvimetry, that can be followed in all obstetric departments and in private hospitals. To date my co-workers and I have analyzed about 1,500 cases of occiput posterior position, personally cared for in labor. Our analysis of the groups reported show an instance of 47 per cent occiput posterior position. Our various percentages are in keeping with Dr. Gustafson's report. Then, since we have accepted the preliminary stage of labor as a part of labor, we find there is little difference in the duration of labor in anterior and posterior positions. It is for this reason that we have in each report said that the only difference between the two positions is in time and the ability to wait. With food, fluids and rest judiciously used, keeping a patient with a moist tongue and a pulse rate below 90, time and management seem to be the answer to our problems. I do not know why rotation takes place in any patient or where to expect it to take place, if at all. Often in seemingly hopeless cases, with more fluids and rest I have seen spontaneous deliveries or changes in station that made delivery safe. Williams, DeLee, Litzenberg, Schwarz and other old masters have said, "Wait!" Realizing that cervical repair has been disappointing in my hands and that uterine inertia and cervical dystocia have been lessened in keeping with my management of labor, I am convinced of the importance of food, fluids and rest.

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# SURGICAL TREATMENT FOR COARCTATION OF THE AORTA

## Experiences from 60 Cases

ROBERT E. GROSS, M.D.
Boston

Coarctation is a congenital obstruction of the aorta; a segment of the vessel has only a tiny lumen or, indeed, may be entirely obliterated. It is four or five times commoner in males than in females. There have been many excellent descriptions of the pathologic structure, particularly in reference to the development of collateral arterial channels.[1] The condition can be quickly recognized during life by adequate physical examination. The seriousness of the prognosis has not been appreciated by most physicians.

In an attempt to determine the prognosis for patients with coarctation of the aorta, Reifenstein, Levine and Gross [2] reviewed postmortem material from the larger hospitals of the Boston area and picked out for study all cases of coarctation whether or not the coarctation had contributed to death. In this way statistics were compiled which would in a rough way reflect what has been happening to persons with coarctation in the population at large. In general, the subjects could be classified into four groups of approximately equal size:

1. About one quarter (26 per cent) of the patients lived a long life, had little or no incapacitation and were able to exist with a reasonably high degree of efficiency. Some lived to advanced old age. Some had mild or moderate disability, which, however, was sufficient to take them to a physician or hospital where appropriate studies indicated the existence of an aortic

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Read before the Section on Surgery, General and Abdominal, at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

[1] Bramwell, C., and Jones, A. M.: Coarctation of the Aorta: The Collateral Circulation, Brit. Heart. J. 3:205-227, 1941.

[2] Reifenstein, G. A.; Levine, S. A., and Gross, R. E.: Coarctation of the Aorta: A Review of 104 Autopsied Cases of the "Adult Type," Am. Heart J. 33:146-168, 1947.

block. In some instances, the abnormality was completely unsuspected until the time of autopsy.

2. About one quarter (22 per cent) of the subjects died *from bacterial endocarditis or aortitis, the infecting* organism usually being the Streptococcus viridans. Obviously, the threat of such infection is greatly minimized today when various chemotherapeutic agents are available. However, it is well to point out that sterilization of the blood stream may be followed by irremediable myocardial damage or weakness and dilatation of an aortic wall which have resulted from a burned out infection.

3. In about one quarter (23 per cent) of the cases there was sudden death from rupture of the aorta. Aortic rupture was most apt to be preceded by hypertension, but it could occur in the presence of relatively normal pressures.

4. About one quarter (28 per cent) of the patients died because of the hypertensive state. Deaths from cardiac failure were about twice as common as fatalities from intracranial hemorrhage.

The majority of the deaths from rupture of the aorta or from intracranial hemorrhage occurred in the second and third decades. Deaths from bacterial endocarditis or aortitis occurred throughout the first five decades, but were most common in the third decade. Deaths from congestive failure were most common in the third, fourth and fifth decades. The average age at death (including those who died of incidental causes) was 35 years. If patients were excluded who died from "incidental" causes, the remaining patients (those who died from coarctation or its complications) had an average age at death which was reduced to about 30 years.

The aforementioned study indicates that, while some persons *may live a long and useful life with coarctation* of the aorta, the abnormality is one which brings tremendous hazards to its possessor. Certainly, attempts to remove aortic obstructions are worth while, provided that such operations can be carried out without prohibitive mortality rates.

### PHYSICAL OBSERVATIONS

Fortunately, coarctation of the aorta produces changes in the peripheral parts of the vascular system which make it easy to recognize the underlying abnormality. By physical examination, the diagnosis can be established quickly and with great accuracy from a few simple readily discernible variations from the normal.

Of greatest importance is the reduction of arterial beats in the lower part of the body. Palpation of the femoral arteries *will reveal a greatly diminished or* an absent pulsation. In some cases a weak femoral pulsation can be felt, but the impulses come much later than the radial artery pulsation—a reversal of normal—indicating that blood is reaching the femoral region by way of *long tortuous channels* through the collateral beds. If femoral pulsations appear to be diminished in intensity, the pressures in the popliteal arteries should be checked with a sphygmomanometer. Normally, the pressure in the legs should be 30 or 40 mm. of mercury higher than that in the arms, but in the presence of an aortic block the leg pressures are decidedly below those of the arms.

Whenever an aorta is obstructed there is a well pronounced tendency for the pressures in the arms to be raised to the upper ranges of normal or to hypertensive levels. In the majority of patients, and certainly in those beyond the first decade, there is hypertension, ranging anywhere from mild to pronounced degree. When any patient is found to have elevated pressure in the arms, the examiner *should check the circulation in* the legs, to seek for coarctation as a possible cause for the hypertension.

Differences of pressure in the two arms greater than 30 or 40 mm. of mercury suggest that the aorta is blocked somewhere proximal to the origin of the left subclavian artery. That this is not necessarily true is indicated by 2 of our patients who had decided discrepancies in the arm pressures; in both subjects the coarctation was well below the origin of the left subclavian artery, but the first part of the subclavian artery was abnormally small or atretic in each case.

A blood pressure determination which is made on an office visit or during rest in bed must not be taken as an indication of the pressure which exists when the patient is performing exercise or is under physical *strain. A normal person will respond to moderate* activity by elevation of the blood pressure 20 to 40 mm. of mercury, but a patient with coarctation of the aorta (in whom a large quantity of blood cannot pass out into the peripheral vascular bed) will respond to exercise by extraordinary rises in the arm pressures, frequently amounting to 100 or 150 mm. of mercury above the resting level.

Evidence of collateral arterial circulation is often observed, but is by no means constant in appearance. It is less apt to appear in children; it is commonly found in adults. It is more easily detected in thin subjects. Pulsations may be seen and felt medial to and below either scapula, above and beneath the clavicles and along either side of the sternum. From the internal mammary arteries pulsations may extend *downward onto the abdomen, along the course of the* epigastric arteries. Pulsations which appear on the anterior part of the chest are apt to be somewhat more intense on the right than on the left.

Murmurs are rather variable. Frequently, but not *constantly, there is a systolic murmur of mild or moderate* intensity over the precordium, which is transmitted with almost equal intensity to the left side of the interscapular area. The level of the point of maximum intensity of murmur to the left of the spine is no indication of the actual level of the aortic block. The systolic murmur which has been so frequently described in connection with coarctation may arise from the constricted segment itself, but in some instances it comes from an angulation of a channel, such as occurs in the region where the internal mammary artery takes off from the subclavian artery. Furthermore, a systolic murmur may originate from an associated interventricular septal defect or, occasionally, from a bicuspid aortic valve. In some patients there is no murmur. In occasional instances, there is a continuous murmur which *is accentuated during systole and which dies off in* diastole. This may have a central origin from an associated patent ductus arteriosus, or it may have a peripheral origin from blood rushing through tortuous and greatly dilated collateral vessels. The murmurs in patients with coarctation of the aorta are inconstant in appearance and are variable in intensity and in timing; little reliance can be attached to them in determining the presence or absence of a coarctation.

In middled-aged subjects electrocardiographic tracings or a poor tolerance for exercise may give evidence *of myocardial damage and cardiac insufficiency.* The eye grounds may show nicking of vessels, narrowing of some channels or hemorrhages of the retina, which can occur with any hypertensive state.

### ROENTGENOLOGIC DATA

The common location for coarctation is just beyond the distal end of the aortic arch. This usually produces certain roentgenologic signs. In infancy or in childhood, examination of the chest may show only cardiac hypertrophy or other changes which do not clearly indicate the type of cardiovascular abnormality which is present. Beyond the first decade of life, roentgenologists are usually able to make a positive diagnosis of aortic coarctation from a few simple observations. The heart is apt to be enlarged. Cardiac hypertrophy and dilatation may be pronounced when there has been long-standing hypertension. The aortic knob is usually small and lacks its normal prominence. In some instances, it is possible to see a slight indentation of the first part of the descending aorta, especially if the patient is turned in just the right angle to throw the aortic shadow off the spine shadow. Most important is the observation of notching or scalloping along the inferior edges of the posterolateral portion of the ribs, where tortuous and pulsating intercostal arteries have eroded the adjacent bone. Rib notching is seldom found in the upper and lower two or three ribs.

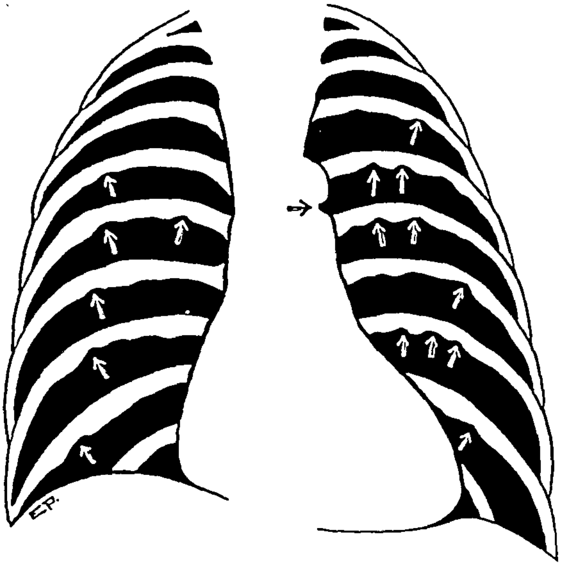

Fig. 1.—Tracing taken from a roentgenogram of a man with coarctation of the aorta. The heart is enlarged. The aortic knob is small. The black arrow points to an indentation in the descending aorta. The white arrows indicate some of the notches on the inferior edges of various ribs.

In rare instances a coarctation may be in the lower portion of the thoracic aorta or even in the upper part of the abdominal aorta. In such circumstances the aortic knob should be normal in size and prominence, and if notching appears on the ribs it should involve only the lowermost ribs.

For exact confirmation of diagnosis and for visualization of the anatomic abnormality, angiocardiography is most useful. I have had some disappointments with the intravenous injection of iodopyracet ("diodrast") because the material has become too diluted by the time it reaches the aorta. Direct injection on the arterial side of the circulation may give better visualization of the aorta. I prefer to do this by retrograde introduction of a polyethylene catheter through the left axillary artery, threading the catheter back through the subclavian artery into the aorta. Iodopyracet injected through this catheter will reach the aorta in very high concentration, and excellent visualization can be obtained.

### SURGICAL TECHNICS

Surgical attack on coarctation of the aorta has been preceded by extensive laboratory investigations [3] which were designed to study the feasibility of resection of segments of the thoracic aorta and to test methods for anastomosis of the remaining ends of the vessel. In dogs it was found that short portions of aorta could be removed safely and that the vessels could be reconstructed with a high percentage of animal survivals, without dehiscence of the suture lines and without thrombosis at the anastomoses. In experiments with different types of arterial suture, it was proved that the most reliable method of anastomosis was that in which the vessels ends were brought together with a continuous mattress suture of silk, with the stitches taken through the entire thickness of the aortic wall and the ends of the vessel turned outward. This brought intima to intima, and, if properly performed, no silk was exposed on the internal surface.

The technical details of operation have been fully described elsewhere [4] and need not be repeated here; however, it is well to emphasize a few points. Intratracheal anesthesia is essential. I now believe that cyclopropane anesthesia for the entire duration of these long operations is dangerous, but it does have distinct advantages for short periods when the surgeon is particularly desirous of having the respiratory movements at a minimum. Ether anesthesia with a closed system for the greater part of the operation has been found to be satisfactory.

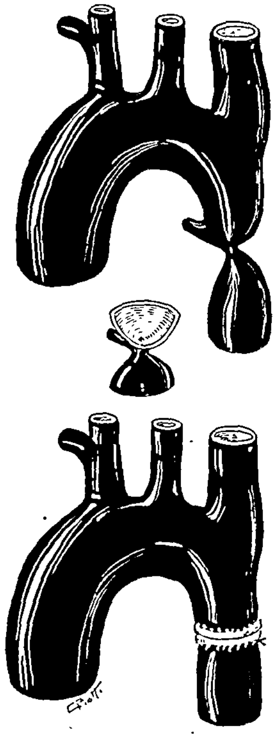

Fig. 2.—Surgical treatment of coarctation of the aorta. *Above*, a common site of coarctation, at or near the attachment of the ligamentum arteriosum. *Middle*, segment of narrowed aorta which has been excised. *Below*, reconstruction of aorta by end to end anastomosis.

It is important to have a cannula in a vein (preferably an ankle) for administration of blood throughout the procedure. Blood loss may be pronounced during the opening of the chest, because of the great vascularity of the thoracic wall. Furthermore, injury to one of the large collateral channels adjacent to the aorta may give rise to serious hemorrhage. Dry sponges and packs are used, so that they can be weighed to determine how much blood they contain. This figure, along with the amount of blood in the suction apparatus bottle, furnishes a rough estimate of the total blood loss and can guide the replacement therapy. It is highly important to give adequate amounts of blood, so that shock and cerebral anoxia are avoided. Infusion of 1,000 or 2,000 cc. of blood is common practice; in a few cases larger amounts have been necessary. The intravenous injection of dextrose during so long an operation is likewise of great value in keeping the patient in a stable condition. Injection of dextrose through the blood transfusion set is apt to lead to clogging of the apparatus; hence, it has been my practice to give the dextrose solution through an entirely separate apparatus for intravenous administration.

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[3] Gross, R. E., and Hufnagel, C. A.: Coarctation of the Aorta: Experimental Studies Regarding Its Surgical Correction, New England J. Med. **233**: 287-293, 1945.

[4] Gross, R. E.: Surgical Correction for Coarctation of the Aorta, Surgery **18**: 673-678, 1945; Technical Considerations in Surgical Therapy for Coarctation of the Aorta, ibid. **20**: 1-8, 1946

The surgical approach is through a long incision medial to and below the left scapula, running well around below the left breast. Previously, most of the fourth rib was removed from its bed, but I have found that this will give a depression deformity of the chest in some cases. More recently the chest has been entered throughout the entire length of the fourth interspace. Short segments have been removed posteriorly from the third, fourth, fifth, sixth and seventh ribs, but it is usually necessary to cut only the fourth and fifth intercostal muscle bundles. A wide exposure is essential. This transpleural approach to the aortic arch and first part of the descending aorta permits an adequate view of the region and will allow mobilization of the aorta from its bed.

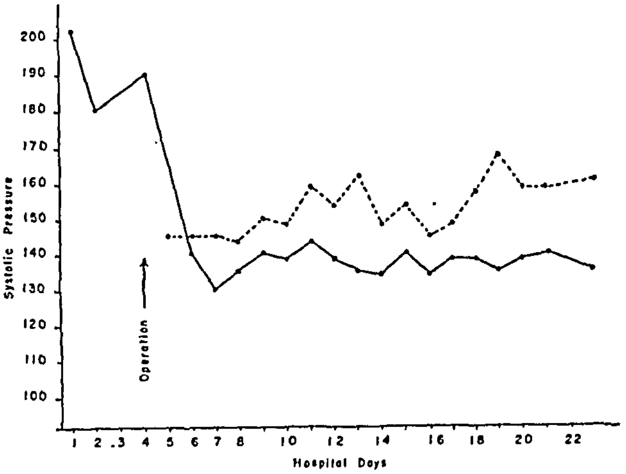

Fig. 3.—Blood pressure chart from a 23 year old woman, who was treated for coarctation of the aorta. The solid line indicates systolic pressure in the arms. The dotted line indicates systolic pressures in the legs. (Prior to operation blood pressure readings could not be obtained in the legs with a sphygmomanometer).

If possible, the intercostal arteries are saved by applying small serrefine clamps to them temporarily. In some cases it is necessary to doubly ligate and divide the upper one or two intercostal arteries, if they lie in a position which will interfere with subsequent sewing of the aortic wall. As a general principle it is well to preserve as much of the collateral blood supply as possible, but in no circumstances should the collaterals be kept if in doing so there is any compromising of the establishment of a first class aortic anastomosis. Appropriate noncrushing clamps are applied above and below the constricted area of aorta, and the narrowed portion is cut away. The remaining ends of the aorta must be fashioned to have lumens of nearly equal size. By handling the clamps, the assistant can bring the ends of the aorta together and maintain them in juxtaposition while the surgeon sews the vessels together; there is no tension whatever on the sutures while they are being placed.

A high coarctation, which appears at, or very close to, the origin of the left subclavian artery can be treated by placing the uppermost clamp directly across the aortic arch and the left subclavian artery, temporarily closing off the latter. This permits the lower end of the aorta to be brought up directly to the aortic arch itself. In 12 cases of the present series a high anastomosis of this sort was required.

In the segments of aorta which were removed, the lumen was usually a tiny opening, no more than 1 or 2 mm. in diameter, and in no specimen was it more than 3 mm. in diameter. In 6 cases of this series there was an associated patent ductus arteriosus, the ductus in 5 instances communicating with the aorta above the aortic obstruction, and in 1 instance it led into the lower aortic segment. In each case the ductus was completely divided and the pulmonary end was closed by continuous silk suture. The distal end of the ductus was, of course, cut away and removed with the narrowed segment of aorta.

In several instances operation was limited to exploration of the chest, because the observation indicated a long constriction in the aorta. In a few cases, when a relatively long aortic segment was removed, there was great difficulty in getting the ends of aorta together because of great tension in the aorta. Finally, in several other operations an insufficient amount of narrowed aorta was cut out, because of the fear that removal of more vessel would lead to insurmountable difficulties in getting the remaining ends of aorta together; this meant that an anastomosis was made in such a way that much of the obstruction was removed, but that a lumen of ideal size was not created. These three sets of circumstances have long made it evident that surgical treatment for coarctation would receive great impetus if it were always possible to remove an entire constricted area (and not merely the most constricted area) and to bridge the gap thus made by a graft or transplant. If it were feasible to transfer safely a large vessel and implant it in this way to fill a gap, the surgeon would be able to cut above and below and reach back to normal-sized aorta and routinely establish an aortic pathway of normal size. Obviously, there is no other vessel in the body which is large enough to supply a segment for filling in an aortic gap. If grafting is to be done, the graft must come from some other person (who has died in an accident or has died after some nonseptic disease). Experimental work[5] from the laboratory (on dogs) seems to indicate that if arteries can be obtained within four or five hours after death they can be transferred to a recipient animal with an excellent chance of survival. Furthermore, methods have been devised whereby grafts can be preserved for periods as long as thirty-five to forty days before being implanted into recipient animals. Tissue culture studies[6] show that vessels preserved in the manner employed are viable for as long as thirty-five or forty days.

In 1 child of 7 years, removal of an aortic coarctation left aortic ends which were widely separated. An aortic graft from another person (which had been

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5. Gross, R. E.; Hurwitt, E. S.; Bill, A. H., and Peirce, E. C., II: Experimental Observations on Blood Vessel Grafting, Science, to be published. Gross, R. E., and Bill, A. H.: Methods for Preservation and Transplantation of Arterial Grafts, to be published.

6. Peirce, E. C., II; Bill, A. H., and Gross, R. E.: Tissue Culture Evaluation of the Viability of Refrigerated Blood Vessels Stored in 10% Serum and Used for Grafting, to be published.

preserved thirty days) was sutured into place to fill the gap. This graft was 5 cm. in length. Postoperative studies indicate that an excellent aortic pathway had been established. This boy appeared to be in excellent health at the time of hospital discharge and at this writing (only one month since operation).

## RESULTS OF OPERATION

Sixty patients with coarctation of the aorta have been operated on. They varied in age from 5 to 30 years. The over-all results are summarized in table 1. In 6 cases, the mediastinum was explored but the obstruction could not be removed because of the conditions which were found, such as regional inflammatory changes from an old burned out infection and a very long segment of narrowed aorta. In 2 other patients excision of the coarctation with end to end reconstruction of the aorta seemed impossible; it was therefore decided to sever the left subclavian artery high in the thorax, after the method suggested by Blalock and Park,[7] turning down the proximal end of the subclavian for end to end anastmosis with the distal segment of aorta. In the first case there was fair, but incomplete, alleviation of hypertension. In the second case (treatment was too recent for final evaluation) the minimal blood pressure changes in the early postoperative period were discouraging as far as the ultimate relief of hypertension is concerned. In the remaining 52 patients the narrowed segment of aorta was excised and an end to end anastomosis was performed. In a few of these the size of the anastomotic opening was smaller than might be desirable, whereas in the vast majority of them it was possible to establish a lumen which had essentially the diameter of the aortic arch. In these 52 cases there were 7 deaths, the causes for which are listed in table 2. In 1 patient there was no relief of hypertension, and in 3 others there was a moderate lowering of the arm pressures; in all of these 4 instances technical difficulties at operation made it impossible to establish an aortic pathway of satisfactory size. In the remaining 41 cases there was complete cure of hypertension; the pressures in the arms fell to normal levels, and there was a concomitant rise in leg pressures to figures equal to, or above, those in the arms.

A high degree of hypertension prior to operation does not necessarily indicate that serious difficulties will be encountered at the operating table, nor does it vitiate the possibility of obtaining a satisfactory postoperative result. Indeed, some of the best effects have been seen in patients who have had systolic arm pressures well above 200 mm. of mercury; they had falls of as much as 100 mm. of mercury in the postoperative period. However, it is certainly true that long-standing hypertension, particularly in male subjects and especially in those beyond the second decade of life, may be expected to increase the surgeon's problem, because the continued pounding of the aorta sets up fibrosis in the tissues of the aortic bed which make it difficult to free the vessel from surrounding structures. Furthermore, long-standing hypertension, especially in male subjects, will lead to greater loss of aortic wall elasticity, so that (following coarctation resection) it will be troublesome to get the remaining ends of the vessel together for establishment of a satisfactory anastomosis.

The age of the patient has an important relation to the postoperative result which can be expected. Obviously, in older subjects, when there are more advanced sclerotic changes in the arterial wall, the risk of operation will be greater and the chances of obtaining a satisfactory aortic union will be less. Operations on older subjects necessarily imply that one is frequently accepting patients who have such conditions as advanced cardiac enlargement, myocardial damage and loss of cardiac reserve. It is difficult to define precisely the upper age limit of operability. In the early part of this work an opinion was expressed that operation should be reserved largely for patients in the childhood and teen age periods, but now surgical experience has extended so that it is possible to tackle cases in the older age groups without assuming too high a risk. Some excellent results have been obtained in patients in the late twenties. However, there can be no doubt that the greatest satisfaction will always be obtained in younger subjects and that the chances for beneficial effects will diminish as one deals with older and older patients.

Table 1.—*Data in Sixty Operations for Coarctation*

| Operation, Result | No. of Cases |
|---|---|
| *Exploration only* | 6 |
| Subclavian anastomosis | 2 |
| Resection of coarctation; end to end anastomosis | |
| Death from various causes | 7 |
| No relief of hypertension | 1 |
| Fair relief of hypertension | 3 |
| Complete relief of hypertension | 41 |

Table 2.—*Causes of Death Following Excision of Coarctation*

| Patient | Age, Yr. | Cause of Death |
|---|---|---|
| P. S. | 7 | Too sudden removal of clamp |
| A. S. | 30 | Hemorrhage from anastomosis (?) (sudden death in 24 hr.) |
| M. B. | 15 | Cerebral anoxia (death 3 days later) |
| E. T. | 9 | Associated rheumatic mitral stenosis (death 1 week later) |
| J. W. | 14 | Death due to cyclopropane (?) (sudden death at end of operation) |
| W. C. | 16 | Cerebral anoxia (death 4 days later) |
| J. H. | 21 | Aortic valve insufficiency (sudden death 14 hr. postoperatively) |

In general, there are several reasons why small children should not be operated on: 1. The risks in babies or very young children would probably be extraordinarily high because the collateral channels are not yet well developed. 2. The aorta is not yet large enough to work on with facility. (It was my experience in experimental procedures that dogs under 35 or 40 pounds [16 or 18 Kg.] in weight had aortas too small to suture with ease.) 3. An aortic lumen may be established at the anastomosis which is satisfactory for a child a few years of age, but it will probably be insufficient in size when the person grows to maturity. Of course, it is possible that an arterial anastomosis will enlarge slightly as the subject becomes larger, but it is almost inconceivable that it will keep pace with the augmentation in size of the person as he grows to adult proportions. There is usually no urgency about operation in very young subjects. I have observed 6 babies within the first year of life who had pronounced cardiac enlargement and evidence of decompensation because of an aortic obstruction, but it was possible in all instances (with hospitalization, oxygen therapy, digitalization and the like) to tide them over for a few months and to have them regain compensation—presumably as they increased the size of their collateral channels. It is probably wise to avoid operation before 6 or 8 years of age unless there are some specific reasons for earlier intervention.

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[7] Blalock, A., and Park, E. A.: Surgical Treatment of Experimental Coarctation (Atresia) of Aorta, Ann. Surg. **119:** 445-456, 1944.

It is important to analyze the operative and postoperative deaths (table 2) in order to reduce the number of fatalities from this type of operation in the future. Of the 7 deaths only 1 was directly connected with the aortic abnormality and can be accepted as a reasonable risk of this type of operation. Probably all of the other deaths could have been avoided by (1) exclusion of patients in whom there is important mitral stenosis or aortic insufficiency, (2) avoidance of cyclopropane for the entire operation, (3) allowing for a slow readjustment of the circulation at the time of removal of the clamps and (4) administration of adequate amounts of fluid and blood during operation. I have no doubt that future series of surgically treated patients with coarctation will carry lower mortality rates than have been possible in the initial phases of this work.

In 1 subject, not included in the present series of 60 cases, excision of the coarctation left a long gap which was impossible to close because of the inelasticity of the remaining aortic ends. A graft 5 cm. in length was inserted between the two ends of the aorta. Insufficient time has elapsed for final evaluation of this technic, but in the month after operation there was complete relief of hypertension in the arms and a raising of pressures in the legs to a level which was higher than that in the arms. The ease with which this graft could be sewed into place to establish a suitable aortic channel would seem to give great promise for the treatment of coarctation in patients of mid-adult life, for whom direct anastomosis of aortic ends may be difficult or impossible. If further trial of these aortic grafts from one person to another indicates that they are relatively safe to use, then I believe that surgical treatment for coarctation of the aorta can be greatly extended and can be offered to patients in older age groups.

Prior to the time when patients had been operated on for coarctation of the aorta there were some theoretical reasons why removal of an aortic block might not be particularly effective in relieving hypertension. Presumably, an aortic obstruction proximal to the renal vessels would lead to renal ischemia of a degree which would produce permanent renal damage—which would then continue the hypertension even though the aortic block were excised. It is now impossible to give credence to this theory, since sufficient experience has accumulated to indicate that if the aortic block is completely removed, the hypertension will disappear.[8] As a corollary of these remarks it should be added and emphasized that the surgeon's duty is not only to remove some of the narrowed area but to remove all of the coarctation, so that a lumen is established which approaches the size of a normal aorta.

Surgical correction for coarctation of the aorta is an undertaking of considerable magnitude. The procedure is time consuming and is certainly accompanied with dangerous pitfalls if one attempts to compromise on the steps which demand patience, gentleness and great accuracy of technic. These operations are apt to be exhausting for the surgeon, anesthetist and the entire team, but they have great compensation in the form of extremely gratifying results whenever hypertension is relieved.

### SUMMARY AND CONCLUSIONS

A firm foundation of laboratory experimentation indicates that sections of the thoracic aorta can be excised and that the remaining ends of the vessel can be brought together by appropriate end to end anastomosis. After testing various types of aortic reconstruction, there seems to be no question that the best repair can be obtained by a union in which mattress sutures of silk grasp the entire thickness of the arterial wall and turn the ends of the vessel outward.

Experiences are summarized from 60 patients who were operated on for correction of coarctation of the aorta. Fatality rates have not been excessive for a major operative procedure in its developmental stages. Without question, many of the deaths in this series could have been avoided by the procedures and precautions which are now being employed. Experience which has now been gathered over a period of three years of surgical treatment for coarctation of the aorta indicates that in the vast majority of subjects it is possible to remove the aortic block and to obtain relief or complete cure of the hypertension.

## ABSTRACT OF DISCUSSION

Dr. Willis J. Potts, Chicago: This superbly illustrated dissertation on surgical treatment for coarctation of the aorta, based on this remarkable series, makes no comment more appropriate than, "Well done." The apology for the mortality rate of 7 in 60 cases is entirely out of order. The mortality of about 10 per cent in an operation this formidable is truly enviable. In regard to the transplantation of preserved aorta, are the laws of physiology and living anatomy immutable, or can they be changed? The aorta is a very complex structure, tough because of its elastic membrane, yet very fragile. Will this highly specialized tissue yield in time to the connective tissue, and will it eventually yield to the onslaught of continued pressure in the formation of an aneurysm? It is brilliantly conceived, and time only will tell whether it will work. If Dr. Gross says that it will work, it will work. It will certainly solve many of our difficulties. I want to present yet another clamp hitherto unpublished. What has worried surgeons, especially in the treatment of patent ductus arteriosus, has been the problem of a slipping clamp. This clamp has been built on the basis of the Indian fakir who walks on many nails, and because he steps on many points he does not injure the sole of his tough foot. This clamp at the top is approximately 1 mm. wide. In it have been formed many tiny points, forty to 1 inch (2.5 cm.). The hub of the clamp is so constructed that the jaws can coapt but cannot interdigitate. In considerable work on animals I have found it is impossible to injure the aorta. These tiny points catch in the adventitia of the vessel and will hold even though considerable traction is made on them. This was based on the development of clamps for the division and suture of patent ductus arteriosus. One clamp is put on the aortic side—it is about 1 mm. wide—and the straight clamp is put on the pulmonary side. Then the ductus can be divided, leaving the entire length of the ductus between the clamps for division and suture. In a boy 16 years of age who had a blood pressure of 250 in the arms and about 100 in the legs and a greatly enlarged heart, I employed the principle of this clamp. He had no stump; his subclavian artery simply made an arch and continued upward.

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[8] Crafoord, C., and Nylin, G.: Congenital Coarctation of the Aorta and Its Surgical Treatment, J. Thoracic Surg. **14:** 347-361, 1945.

There was a stricture which was less than 1 mm. in size. The long clamp was put across the top, and, according to Dr. Gross' technic, which personally I prefer, of turning the vessel over, I sutured the posterior row and then turned it back and sutured the anterior row. Whether there is any advantage with such a narrow clamp in having part of the blood continue through the subclavian during the operation I do not know. The boy's blood pressure dropped immediately after the operation to 150 and remained at that level, and the pressure in his legs came up to approximately 150.

Dr. Richard B. Capps, Chicago: The development of surgical methods for the correction of congenital cardiovascular defects is one of the most important scientific achievements of the last decade. Dr. Gross has been one of the most brilliant workers in his field. As an internist, I would like to emphasize two points that Dr. Gross made. In the first place, coarctation of the aorta has usually been looked on as one of the congenital cardiovascular defects with an excellent prognosis. Dr. Gross in a study made in the last few years has shown that this was a misconception. He found that only 25 per cent of these patients live a normal life. This fact obviously justifies one in undertaking a fairly considerable surgical risk in trying to correct the condition. The second point I should like to make is the importance of early recognition. Dr. Gross has shown that it is desirable to operate on these patients before they are too old. I feel certain that the condition in a large percentage of cases is never diagnosed at all, and certainly in a large percentage it is not recognized until too late, until the patients have reached an age wherein surgical mortality is considerably increased. This means that internists and general practitioners must bear this condition in mind, and when they have a patient with hypertension, a patient with murmurs or arterial pulsations in unusual places, they should always palpate the femoral pulse and, if necessary, determine the blood pressure in the legs. Only by a wider recognition of this condition in its early stages can the full value of the new technics be realized.

Dr. Alfred Blalock, Baltimore: Dr. Gross and Dr. Clarence E. Crafoord of Stockholm are certainly to be congratulated for their excellent work on coarctation. My co-workers and I have operated on 26 patients with coarctation of the aorta, in most of whom we have used an end to end anastomosis between the proximal and distal segments. In several patients, we have used the subclavian as a by-passing artery, but certainly the end to end anastomosis is to be preferred. There are still instances in which one will have to use the subclavian artery unless the interesting use of aortic grafts as described by Dr. Gross proves to be safe and practical. These are the instances in which the constricted area in the aorta is unusually long and those in which the aorta is decidedly diseased.

Fifteen of the 26 patients on whom we have operated were more than 20 years of age. We have lost only 1 patient in this older age group, whereas 2 of the 3 deaths have been in the younger age group. These 2 younger patients had other congenital anomalies. I know that for a while Dr. Gross was not operating on patients over the age of 16, and I would like to ask him whether his views in that regard have been altered. Several days ago, I operated on a man of 41 years of age who had severe hypertension, severe headaches and severe precordial pain and who insisted on having the operation performed. It was found that his aorta was in suitably good condition for an excision of the stenotic area and an end to end anastomosis. I think that he is the oldest patient thus far to have been operated on for this condition. I thoroughly agree with what Dr. Gross has said—and Dr. Crafoord has emphasized this repeatedly—that one should save the collateral intercostal arteries. Not only are they helpful in conducting blood to the lower part of the body, but preserving them actually makes the operative procedure easier. The ligature is apt to cut through these thin-walled dilated intercostal arteries if they are ligated. Since these intercostal arteries run in an upward direction, I do not believe that their preservation interferes at all with the approximation of the proximal and distal segments of the aorta. As Dr. Gross has said, it is the division of the ligamentum arteriosum that really gives one the mobility and the length that one needs. In patients who have a very short proximal segment of the aorta, we use a modification of the Potts aortic clamp on this proximal segment. The back part of the clamp is narrower than the Potts aortic clamp, and one may place it on in the crotch between the left carotid and the left subclavian arteries. By this means, the proximal aorta may be completely occluded and the left subclavian artery partially occluded, thereby giving one a proximal stump of more adequate length. We have found the use of this clamp very helpful. I wish to congratulate Dr. Gross on this excellent presentation and particularly on the newer phase of the work that he has brought out, namely, the use of homogenous aortic grafts.

Dr. Egbert H. Fell, Chicago: I believe that it would be a mistake if some neophyte did not get up and express appreciation to Dr. Gross, Dr. Potts, Dr. Blalock and Dr. Shumacker for their excellent teachings and writings which have meant so much to us in preparing to give surgical relief to those with congenital cardiovascular diseases. There are three points I should like to make. One is that if one visits their clinics and watches them, one realizes the importance of teamwork—teamwork among pediatricians, cardiologists, anesthetists and nurses—and the importance of an excellent surgical team. At the Cook County Hospital and the Presbyterian Hospital of Chicago, we have successfully operated on 3 patients with coarctation, all children and all the operations done after the teachings and instructions of Dr. Gross. I wonder whether Dr. Craig, from his study of hypertension, has any idea how many children were found with hypertension that had no femoral pulse. Palpation of the femoral pulse is an important part of a routine physical examination. One of these children was a small boy, 10 years of age, with hypertension (140) and no pulsation in the legs. The larger boy had a pressure of around 200, with no pulsation in the legs. The larger of the two was 13 years of age and undergoing adolescent changes. These children grow rapidly during adolescence and have well developed shoulders. Both boys appeared normal, and yet both were greatly handicapped because of the hypertension. Drs. Gross and Blalock have made great contributions. If physicians are more careful in physical examinations they will be able to convert a seriously handicapped patient to a normal person.

Dr. Norman E. Freeman, San Francisco: Dr. Gross is indeed to be congratulated on the splendid results that he has obtained. He spoke of visualizing the zone of the coarctation by injecting a radiopaque material through a catheter introduced by way of the left axillary artery. Visualization is valuable as a means of avoiding operation in those patients who have an extensive narrowing or in whom the coarctation is not in the region of the descending arch. My co-worker and I attempted to introduce iodopyracet ("diodrast") through a catheter but were unable to inject sufficient contrast medium rapidly enough for visualization. Dr. Earl Miller of the Department of Radiology and I then resorted to retrograde injection of iodopyracet into the left common carotid artery. By this technic we have obtained satisfactory visualization in 14 out of 18 cases. The artery is exposed by a transverse incision above the sternoclavicular articulation and is surrounded by a segment of rubber tubing. After preliminary roentgenograms, the distal carotid is compressed and a needle is inserted under direct vision into the lumen of the artery. The needle is connected by a short segment of tubing to a 50 cc. syringe containing 70 per cent iodopyracet. This solution is injected as rapidly as possible and serial roentgenograms are taken, the first just before completion of the injection. For children an 18 gage needle has been used with the injection of 10 to 25 cc. of solution. In adults we have used a 16 gage needle with 50 cc. of solution. It is important to occlude the carotid artery above the needle during the injection and, after completion of the exposures, to withdraw the iodopyracet solution remaining in the carotid artery, so that none of it reaches the cerebral circulation. Convulsions may otherwise be produced. There were 4 patients in the series of 18 in whom thoracotomy was avoided as a result of visualization of the thoracic aorta. One child had a normal distribution of arteries. In the second patient with classic observations of coarctation of the aorta, the thoracic portion of this vessel was normal. Extensive atresia of the aorta in the lower part of the thorax was visualized in another patient. Finally, the degree of narrowing in the fourth case did not seem to be sufficient to warrant operation. There have been no significant complications from this procedure.

Dr. Robert E. Gross: Dr. Potts mentioned the possibility that the aorta grafts might not hold up for a protracted period of time. That may be true. I would not use a graft on any patient if it is possible to perform a direct anastomosis, because I am sure that the latter is far superior. But it is well to point out that it has been possible to implant grafts in dogs for as long as a year and to find them in excellent condition at the end of such time. It is because of the laboratory groundwork that I have felt justified in trying grafts in a few patients. In reply to Dr. Blalock's question about the age at which it is possible to operate on subjects with coarctation, in the first part of this work I would not have accepted anybody in the upper ages because the technical difficulties increase with age. Like every new procedure, the more experience one gathers, the better the technic becomes, and it is then possible to tackle more and more difficult cases. I am delighted to hear that such good results have been obtained in a man of 41 years. The third point has to do with the adequate support of these patients during a long procedure. One must not allow them to get in a condition of shock or near shock, and then try to pull them back. It is highly important to prevent shock. They must have blood, dextrose and the like, throughout the operation. In order to estimate roughly the blood loss in these patients (blood which is apt to come from the thoracic wall) I take certain precautions. Dry sponges are used; uniform in size, weighing about 8 Gm. They are not moistened when they are put into the chest; when they are discarded a nurse weighs them. There is a scale on which the weighing can be quickly made so that the amount of blood the sponges contain can be quickly ascertained. That figure, plus the amount of blood that is in the suction apparatus bottle on the floor, quickly tells the total amount of blood which has been lost. It is a rough estimate, of course, but it does give one a lead in estimating the amount of blood which must be infused back into the patient.

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**Rat-Free Alberta.**—To arrive at some explanation as to why Alberta should be rat-free when other parts of North America are infested, a study of various factors has been undertaken. They included physical geography, political geography, vegetation zones, climate, land settlement, land utilization and rat invasion, migration and distribution. The study is not complete but has progressed to a point where preliminary publication appears warranted. Sufficient evidence has been elicited to indicate that a unique opportunity exists in western Canada for a detailed study of the methodology of rat invasions, migration, and distribution. . . . On many occasions during the past forty years rats have been reported in Alberta. And on each occasion the rats were brought in by the railways, but on every occasion they were found and destroyed. The people of Alberta are extremely wide-awake to the rat menace, and are determined to keep Alberta rat-free. However, the true answer to the problem . . . lies not in the interest and enthusiasm of the people of Alberta; it lies in a definite rat-exclusion campaign . . . that should start, not when the rats reach the Alberta border, but now on the west bank of the South Saskatchewan River fifty miles east of the provincial border. The battle that is fought there, if and when it is fought, will determine how long Alberta remains rat-free.—John H. Brown, M.Sc., Alberta: The Only Rat-Free Province in Canada, *Canadian Journal of Public Health,* September 1948.

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# HEARTBURN

## A Clinical Study

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and
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All physicians encounter patients who have symptoms that are difficult to treat because the mechanisms which produce them are poorly understood. Gastroenterologists deal with a number of such symptoms, among which may be listed not only the many varieties of abdominal pain but also such complaints as belching, flatulence, malodorous breath, a bad taste in the mouth, coated tongue and heartburn. Although these are usually considered to be of minor significance, they may cause great annoyance and, by their resistance to treatment, create troublesome problems for both the patient and the doctor.

Heartburn, the subject of this discussion, is such a symptom of vague causation. Although much has been done to explain its origin, there still exists a need to evaluate the clinical significance of heartburn and of the factors which cause it, so that satisfactory therapy can be planned.

The various studies already carried out in investigating the origin of heartburn need not be reviewed in detail. Reference should be made, however, to the work of Jones.[1] By dilating the esophagus with balloons placed at different levels and by injecting into the esophagus various fluids, he was led to the conclusion that the sensation described as heartburn was caused by an increased state of tension in the muscularis of the esophagus just above the cardiac sphincter, with additional peristalsis in the reverse direction. The relation of local mucosal changes in the lower part of the esophagus to the development of heartburn has not been entirely settled. Alvarez[2] spoke of "sensitization" of the esophagus as contributing to heartburn. The exact nature of this process is not further defined. Babey[3] found that the slow injection into the esophagus of fluids ordinarily considered irritating caused no distress, but that if even bland fluids, such as water or dilute solutions of sodium bicarbonate, were injected rapidly burning distress was produced. This observation argues against mucosal irritation as the mechanism causing heartburn, as does also the speed with which the symptom will often appear and disappear. In all probability, therefore, heartburn is caused by abnormal neuromuscular activity at, or just above, the cardia with alteration in esophageal tonus. This neuromuscular activity may be a response to too rapid dilatation of the esophagus during the act of swallowing, to contraction of the cardiac sphincter because of psychogenic factors or the result of reverse peristaltic waves which begin in the stomach and ascend into the lower part of the esophagus.

Despite the studies which suggest that heartburn is primarily an esophageal symptom, the opinion is still held by some physicians, and it certainly prevails among laymen, that the symptom suggests some organic disturbance of the stomach, duodenum or other portion

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[1] Jones, C. M.: Digestive Tract Pain: Diagnosis and Treatment; Experimental Observations, New York, The Macmillan Company, 1938.

[2] Alvarez, W. C.: Heartburn, Gastroenterology 3:1, 1944.

[3] Babey, A. M.: Observations on the Nature of Heartburn, Am. J. Digest. Dis. 4:600, 1937

of the gastrointestinal tract and also that it is due to "hyperacidity." There is a failure to place the proper emphasis on the production of heartburn by functional esophageal disturbances, caused by faulty eating habits and aerophagia. The frequency with which heartburn is a manifestation of emotional tension is often overlooked. This study was undertaken for the purpose of further dispelling some of the existing misconceptions concerning heartburn. A similar study has already been reported by Alvarez.[2]

### PATIENTS STUDIED

The persons examined for this purpose were a group of 120 patients consecutively encountered in office practice. These patients had been referred to us because of a variety of gastrointestinal disturbances. Since they were unselected in any way, we believe they may be considered fairly typical of patients who consult physicians because of digestive and abdominal distress. Forty-six of these patients, approximately 38 per cent of the total, complained of heartburn; 74 did not have this symptom. The patients with heartburn included 21 men and 25 women, a sex distribution similar to that of the control group, and the age distribution of those with heartburn was likewise not noteworthy. We were not able to find any indication that heartburn occurred more frequently in patients with specific types of body build or habitus.

Among the 46 patients with heartburn, there were 26 in whom the symptom was of sufficient severity to warrant our considering it a major symptom, although in none of these was the heartburn the only reason for seeking medical care. In 20 patients the heartburn was of minor severity, and these persons frequently made mention of the presence of heartburn only after direct questioning.

### PATIENT'S DESCRIPTION OF HEARTBURN

It was often difficult for a patient to describe clearly the type of discomfort with which he suffered and which he called "heartburn." A sensation of burning or heat was the usual description. Adjectives such as "searing" or "acid" were occasionally used. The distress was often localized rather vaguely. The commonest site was behind the lower part of the sternum rather than in the epigastrium. When the patient was asked to point to the area of greatest discomfort, he often placed the entire hand over the lower part of the sternum, indicating an inability sharply to locate the burning sensation. Radiation of the distress only rarely was in a downward direction. When, however, the heartburn was severe, it tended to spread upward along the course of the esophagus, frequently to the pharynx and even to the angles of the jaw. In some instances, the burning sensation was localized entirely to the pharynx, or the pharyngeal distress was so pronounced that substernal burning was mentioned only when it was inquired about specifically. In general, the location of the heartburn did not vary much in the same patient, but it usually recurred in about the same area.

The most frequent time for heartburn to begin was shortly after a meal, particularly a large meal eaten rapidly. The time relation to food intake was inconstant, however, and varied from attack to attack in some patients. Many patients noted no relation to food intake. This was particularly true of those whose heartburn occurred at night and prevented or interrupted sleep. This might happen even though no distress had been present during the day.

### ASSOCIATED SYMPTOMS

Various additional symptoms were associated with heartburn. Occasional patients complained of epigastric pain. Five spoke of epigastric pressure or fulness, synchronous with the substernal burning. The pain differed somewhat from the pain observed in those patients in this group who had such organic gastrointestinal disorders as ulcer, hiatal hernia or cholelithiasis. It was not severe but was usually a sense of distention, indefinitely related to meals, that did not radiate and was usually relieved by belching.

Acid regurgitation occurred in 22, or almost 50 per cent of the patients who had heartburn. In general, this was observed in those whose heartburn was severest, but many patients with severe heartburn did not experience acid regurgitation. The regurgitation was usually described as a bringing up into the pharynx or mouth of intensely sour fluid. Only rarely was the fluid vomited, most patients reswallowing it. Acid regurgitation usually followed severe heartburn that persisted for some time. Occasionally, the ability to regurgitate a few mouthfuls of fluid terminated an attack.

Of the other gastrointestinal symptoms complained of by our patients with heartburn, belching was commonest and was noted in 28. This, of course, is an extremely common symptom. It is interesting to note, however, that it occurred in more than 60 per cent of the patients with heartburn, but was prominent in only 19, roughly 25 per cent, of the 74 patients who did not have heartburn. Detailed studies of the character of the belching of these patients with heartburn indicated that, as in most persons, the eructations were largely the result of factors which produced air swallowing. The belching usually was habitual, often explosive and worse during periods of nervous tension. Many of the patients noted that both symptoms, belching and heartburn, were aggravated by the same factors, such as hurried eating, emotional strain and anxiety. Only rarely could statements be elicited to indicate that the act of belching induced heartburn or that belching relieved heartburn.

Nausea was also fairly common in these patients, being an additional symptom in 17, or about 37 per cent. The nausea tended to occur in waves and to be worse during periods of severe heartburn. Actual vomiting was much less common, being complained of by 7, or about 15 per cent of the patients. The vomiting generally consisted of recently ingested food and did not always relieve the heartburn.

Colonic symptoms, severe constipation and diarrhea, were complained of with a little less frequency by those patients with heartburn than by those without heartburn. These existed in roughly 47 per cent of the patients with heartburn, 16 having constipation and 5 diarrhea, whereas 58 per cent of the control group had these symptoms, 32 being constipated and 11 having diarrhea. The differences in the rates of occurrence of these colonic symptoms did not seem significant. If any conclusion can be drawn from this comparison between the two groups, it would seem to indicate that the functional colonic disorders, which were largely responsible for the constipation or diarrhea of almost all of the patients in whom they were observed, do not influence the incidence of heartburn.

### FACTORS WHICH PRECIPITATED OR AGGRAVATED HEARTBURN

Nervous tension was apparently the outstandin immediate cause of heartburn in this group of patien Thirty-four of the 46 patients, almost 75 per recognized that their heartburn was worse during periods of emotional strain. They could frequently cite specific situations in which their heartburn had been troublesome. This point will be discussed in greater detail in speaking again of the causation of heartburn, but, as we reviewed these patients, we were increasingly conscious of the frequent close relation between annoyance, nervous tension or anger and the appearance of severe heartburn.

Fatigue was also recognized as an aggravating factor by 8 of the patients with heartburn. They knew that hard work and long hours increased the frequency and severity of their substernal burning. How often fatigue was responsible for increased nervous tension and initiation of emotional disturbance could not be stated with accuracy.

Specific foods were considered as causing heartburn by 16, almost one third of these patients. The offending foods were usually mentioned as groups of foods, rather than individual substances. Thus, sensitivity to such classes of foods as "fats," "fried foods," "spices," "gravies" and "sweets" was often mentioned by patients, although a number did name additional individual foods which also caused distress. Coffee, onions, cabbage, chocolate and orange were outstanding examples of these. These foods, which apparently caused or aggravated heartburn, are, of course, often thought to be the sources of discomfort to many patients. It was interesting to observe, however, that of the control group of 74 patients without heartburn, only 10 believed that fats, spices, greasy foods and the like disagreed with them. The symptoms produced in these latter patients by the offending foods were generally described as epigastric pressure, discomfort, belching and flatulence, symptoms which might also occur in association with heartburn when this was caused by these foods. It is difficult to be certain of the mechanism by which the foods mentioned precipitated heartburn. It is possible that alterations in gastrointestinal motility resulted in reverse peristalsis and consequent pressure changes within the esophagus. There is still no clear explanation of why and how foods "disagree' with various persons.

The sensitivity to foods just mentioned seemed entirely different from food allergies. Specific allergies to foods were noted in only 2 of the 46 patients with heartburn. Both were sensitive to chocolate, and, in addition, 1 was also sensitive to peanuts and onions. The taking of these foods produced heartburn, as did the taking of such substances as fats and sweets. There were, however, 9 patients in the group of 74 without heartburn who had definite allergies to a large variety of foods. Ingestion of known allergens induced such digestive symptoms as abdominal cramps, diarrhea, nausea and vomiting and aphthous ulcers in the mouth, but did not cause heartburn in these persons. It is difficult to conclude, therefore, that heartburn is a symptom of allergic origin.

The relation of heartburn to the act of eating, without reference to the type of food taken, was not a constant one. Thirty-four patients stated that their heartburn occurred after meals and could be relieved by fasting. Twelve others felt worse when hungry and were relieved somewhat by food. The relationships between food intake and heartburn varied, however, from time to time. Many of the patients recognized that their manner of eating induced heartburn and that they were more likely to suffer when they ate too fast or ate when excited.

Six of these patients recognized that smoking made their heartburn worse, and in 2 heartburn was aggravated by alcohol. The number of drinkers in the group, however, was so small that no conclusions regarding the influence of liquor is justified.

Six of the patients believed that their heartburn was worse during periods of constipation, and at such times the heartburn was associated with other vague symptoms, such as flatulence and belching. It was occasionally possible for these patients to obtain relief of their heartburn by the use of a laxative or an enema.

In general, posture did not seem to have much influence on the occurrence of heartburn. Body position was of greatest influence in those patients who had some defect in the region of the cardia. The 8 patients with heartburn who had hiatal hernia noted definitely that lying down or bending over increased the heartburn and that the symptom was worse at night. This was also the case in 1 man whose studies demonstrated what was considered to be a "relaxed cardia." Of the other patients who had no structural changes about the lower part of the esophagus, only 1 had heartburn that was worse at night or while the patient was recumbent. One other patient, in contrast, could relieve her heartburn by lying down.

### FACTORS WHICH RELIEVED HEARTBURN

Patients suffering with heartburn try various methods for relief of this symptom. Among our patients, the commonest form of self treatment was the taking of antacids, of which sodium bicarbonate was used most widely. Twenty-one of the 46 patients could ease their heartburn by taking antacid medication. The majority had used soda at various times, and considered this to be of specific benefit, but all varieties of proprietary antacids—including combinations of bismuth subcarbonate and magnesium trisilicate with and without soda, as well as aluminum hydroxide preparations—were tried. These were used with variable success by different patients, and many of them selected time-tested favorites on which they could usually rely for relief. Although numerous antacids that did not contain soda seemed helpful, many of these were chosen in preference to soda for reasons of convenience or because it was thought that the frequent taking of soda might be harmful. Most of the patients believed that, if soda could be taken, this afforded relief more rapidly. Relief by soda was usually ascribed by the patient to the belching it caused, but belching was not essential to relief by antacids, since many of these gave relief without causing eructations.

There was no consistent relation between the relief given by antacids and the amount of hydrochloric acid in the stomach. A few patients in this group whose acid levels were low also used antacids to relieve heartburn, and apparently successfully. We have seen 1 patient, not included in this group, who suffered with heartburn even though his stomach had been entirely removed because of a gastric malignant condition. This man also occasionally took soda and obtained relief from it.

It must be noted that 25 of these 46 patients were not able to relieve their heartburn by taking antacids. This would seem further to indicate a lack of relation between the occurrence of heartburn and the amount of acid in the stomach.

The maner in which alkalies relieve heartburn is still uncertain. In the case of soda the relief may result from changes in the esophageal tonus which come after induced belching. The other antacids may be palliative because they alter intragastric tonus and so, indirectly, relieve pressure within the lower part of the esophagus.

The origin of heartburn in altered esophageal tonus is also suggested by the fact that many patients with heartburn get relief if they can belch. This was true of 17 of the 46 patients. These patients were helped by belching induced by the taking of soda, carbonated beverages or large amounts of fluids. Often, however, after relief was observed following belching that was apparently spontaneous, patients learned to make themselves belch and became aerophagic as a result. The taking of food relieved the heartburn of 12 of these patients. Usually the patients did not make a practice of eating in order to obtain relief, but a few patients acquired the habit of taking milk just as patients with ulcer learn to do this to relieve their pain.

### RELATION OF HEARTBURN TO ORGANIC GASTROINTESTINAL DISEASE

To enable us to decide whether the presence of organic gastrointestinal disease led to the development of the symptom of heartburn, comparison was made of the final diagnoses established in the 46 patients with heartburn and the 74 patients without this symptom. The results are listed in the table.

*Incidence of Gastrointestinal Diseases in Patients With and Without Heartburn* *

| | Heartburn, No. of Patients | No Heartburn, No. of Patients |
|---|---|---|
| No significant gastrointestinal disease... | 15 | 35 |
| Ulcer .................................... | 7 (duodenal)<br>1 (gastric) | 23 (duodenal)<br>2 (gastric) |
| Cholelithiasis ........................... | 6 | 4 |
| Gastritis (gastroscopic diagnosis)....... | 3 | 1 |
| Irritable colon syndrome................ | 11 | 18 |
| Hiatal hernia ............................ | 8 | 3 |
| Food allergies ........................... | 3 | 9 |
| "Cardiospasm" ........................... | .. | 2 |
| Gastric carcinoma ....................... | .. | 3 |
| Ulcerative colitis ........................ | 1 | 1 |
| Carcinoma of colon...................... | .. | 3 |
| Acute hepatitis .......................... | .. | 3 |
| Previous gastric resection............... | .. | 1 |

* There were 46 patients with heartburn and 74 without heartburn; many patients had multiple diagnoses.

In both groups there were significant numbers of patients who did not have definite gastrointestinal disease. These were patients who had abdominal or digestive symptoms of purely "functional" origin or secondary to disease outside the gastrointestinal tract. It is important to note, however, that in one third of the patients with heartburn detailed gastrointestinal investigation did not reveal organic disease of the digestive organs.

Ulcer, either gastric or duodenal, existed in 8 of the 46 patients with heartburn (17.4 per cent) and in 25 (33.7 per cent) of those without heartburn. Of the 33 patients with ulcer encountered in the entire group of 120 studied, only 8, or 24.2 per cent, complained of heartburn. In those patients with ulcer who had heartburn, no definite relation could be traced between activity of the ulcer, as indicated by characteristic pain or roentgen evidence of this, and the occurrence of heartburn. When patients first presented themselves with active ulcer disease they sometimes stated that the heartburn and the epigastric pain occurred simultaneously. Questioning would usually indicate, however, that what was meant was that both symptoms often occurred at the same time in relation to food intake, but that they really were independent of each other, the heartburn not undergoing seasonal or spontaneous remissions with the pain and usually persisting long after therapy had completely relieved true ulcer pain. Continued observation of patients with ulcer having heartburn indicated that pain and other indications of ulcer activity yielded to therapy much more readily than did the heartburn. Our experience was, therefore, in accord with that of Alvarez.[2]

Heartburn was not found to be a symptom of ulcer, and when it was complained of by patients with ulcer it seemed purely an extraneous symptom.

In the total group of 120 patients there were 29 in whom the final diagnosis of "irritable colon" syndrome was made. This diagnosis is a rather loose one and was based on the presence of either constipation or diarrhea as a major complaint, the presence of distress in the lower part of the abdomen related in its occurrence to bowel function, absence of organic disease of the colon and roentgen demonstration of disturbed colonic motility and tonus. It was frequently difficult to decide whether patients with these symptoms were best considered as having simply a "functional gastrointestinal disorder" or whether they should be placed in a more closely defined category. Preponderance of colonic symptoms was usually the criterion for deciding on the diagnosis of "irritable colon."

In any case, heartburn was a symptom in 11 of the 29 patients classified as having an irritable colon. The incidence of heartburn was roughly the same as the incidence of heartburn in the entire group of 120 patients. Eighteen patients with irritable colon did not have heartburn. Patients with irritable colon and heartburn did not observe any relation between the latter and their bowel symptoms. Our experience indicates, therefore, that the mechanism causing heartburn was independent of that responsible for the irritable colon syndrome.

There was no indication that heartburn was a significant symptom of cholelithiasis. Although it occurred in 6 of the 10 patients with gallstones, there was no relation between the heartburn and the major attacks of biliary pain. Heartburn, when it existed, seemed to be a purely coincidental complaint. None of the patients in this group, however, was subjected to cholecystectomy, so that the effect of the removal of the gallbladder on the symptom of heartburn cannot be stated.

Hiatal hernia was the only organic condition among these patients with which heartburn seemed to be associated with outstanding frequency. Of the 11 patients with hiatal hernia, 8 complained of heartburn as a major symptom. They also suffered with abdominal and substernal discomfort. In these patients the heartburn usually occurred after a full meal and was also nocturnal, apparently induced by lying down and relieved by the upright position. Similar description of symptoms was made by 1 patient with "relaxed cardia." If heartburn is due to disturbed function of the lower part of the esophagus, its frequent occurrence in patients with hiatal hernia is not surprising.

Gastric analyses were done in 31 of the 46 patients with heartburn. Free acid was low or absent in 4, normal in 15 and above normal in 11. Fifty-two of the 74 patients without heartburn had gastric analyses. Low or absent acid was observed in 11, normal acid levels in 25 and hyperacidity in 16. These observations, similar to those already observed by others, show once more the lack of any dependence of heartburn on the degree of gastric acidity and the lack of relation of heartburn to "hyperacidity."

In general, therefore, review of the diagnoses established in patients with and without heartburn did not indicate that heartburn occurs because of organic gastrointestinal disease. Heartburn was not observed to be a symptom suggesting the presence or absence of any specific gastrointestinal disorder, with the possible exception of hiatal hernia. The existence of heartburn, therefore, is probably not due primarily to any organic change within the gastrointestinal tract.

## CAUSES OF HEARTBURN

Heartburn is not due to any organic gastrointestinal disease. It is not caused by excessive gastric acidity. Investigations, such as those of Jones,[1] indicate that changes in the tonus of the esophagus probably produce this symptom. How are these changes brought about in patients who suffer with heartburn?

Discussions with these 46 patients indicated that many patients with heartburn have what can be described as bad eating habits. Twenty of the 46 admitted that they were extremely fast eaters, who took their meals in as short a time as possible, either because of long-standing custom, often familial, or because of the supposed necessity for speedy return to work. Many of the patients consumed large amounts of fluids with their meals, often taking two or three glasses in rapid succession. Carbonated drinks were taken freely by a few of the patients. About half of these patients were aerophagic, but it was difficult to tell whether this symptom had preceded or followed the appearance of heartburn. A number of the patients had apparently acquired the belching habit in an attempt to relieve heartburn. Gum chewing, with its resultant constant swallowing and repeated belching, was a frequent habit. In fact, most of these patients were doing various things which could conceivably lead to overdistention of the stomach, reversal of gastric peristaltic waves, with regurgitation of air and fluids into the lower part of the esophagus, and consequent increase in the activity of the lower part of the esophagus. If heartburn is considered to be a result of altered neuromuscular activity within the lower part of the esophagus, ample background seemed to exist for this in these patients. Faulty eating habits are, of course, fairly common, but questioning of the 74 patients without heartburn revealed that fast eating, gulping of food, washing it down with large quantities of water and the like were practiced by only 9 persons in that group. This further suggests the role which poor eating habits may play in the evolution of heartburn.

In addition to the factors just mentioned, attention should be called to the personality makeup of some of the patients who had heartburn. Among the 46 with heartburn there were 8 men who can be described as extremely tense, quick to anger, resentful and easily offended. They seemed rather rigid, a little difficult to get along with and critical of minor faults in others. As some of them said, they "got burnt up easily." Few of them had ready insight into their reactions of other persons. They had numerous prejudices and suspicions that kept them on guard and made relaxation difficult. Occasional patients seemed almost masochistic in their relations with other persons. One patient described a situation in which he permitted an employee to continue to do something that was obviously incorrect "just to see how long he thought he could get away with it." During the entire time that these circumstances existed the patient was extremely tense and he continued to have heartburn of great severity, resistant to all attempts at relief. This increased each time he discussed the employee's wrongdoing or even thought about it. With great difficulty he was finally persuaded to order the employee to correct the fault. There was significant decrease in the patient's tension, and the heartburn promptly disappeared. The patient was referred for psychiatric care because of repetition of episodes of this type. Psychotherapy gave him insight into his problems and helped him acquire ability to handle them. Coincident with this, his heartburn disappeared without significant change in diet and without medication. Formal psychiatric care was of benefit in the treatment of 2 additional patients.

Unfortunately, it was not possible to make fluoroscopic studies of these patients during periods of emotional stress to visualize what changes, if any, these produced in esophageal caliber and motor activity. Studies have been reported by Faulkner,[4] however, which demonstrated by direct esophagoscopic examination that esophageal spasm can be increased and the esophageal lumen narrowed or closed by suggestions producing destructive emotions, such as grief, anger, apprehension, anxiety and fear.

Heartburn may, therefore, occasionally be a symptom of psychosomatic origin. It may be what can well be termed "a monosymptomatic neurosis," a somatic reference of psychogenic disturbances, although why the esophagus is selected as the organ of reference is difficult to state without much deeper psychiatric investigation than these patients had.

Here again definite differences were found between those patients who did and those who did not suffer with heartburn. Among the 74 patients without heartburn, there were many who could easily be considered "neurotic"—patients who were worrisome and anxious about their health or about various situations and problems, introspective, dependent and not sure of themselves. These characteristics were not uncommon among those with "irritable colon," but most of these patients were not resentful, did not anger easily, were eager to establish satisfactory contact with the physician and fairly easily reached an understanding of the problems which troubled them. In fact, of the 74 patients who did not have heartburn, only 1 was found whose personality pattern was similar to that observed in some of the persons with intractable heartburn. We believe, therefore, that heartburn may occasionally be a neurotic manifestation and that in these circumstances its relief may require adequate psychiatric study and therapy.

## TREATMENT

The treatment of a symptom such as heartburn is not so much a matter of single specific measures as of the outlining of a general program which will remove the cause, if any can be found, and allay the irritability of the esophagus and stomach, as well as help the patient understand the nature of his problem so that he can aid in its correction.

Review of the course of the 46 patients who had heartburn indicates that, in general, drugs were of little use in the treatment of the symptom and were probably not essential for its relief. Antacids were

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4. Faulkner, W. B.: Objective Esophageal Changes Due to Psychic Factors, Am. J. M. Sc. 200: 796, 1940.

prescribed, but only to 5 patients. These were patients with peptic ulcer who had active ulcer symptoms and were treated by means of diet, sedatives, belladonna and either aluminum hydroxide or magnesium trisilicate. It is difficult to ascribe the relief of heartburn in these circumstances to the use of antacids.

Belladonna, without antacids, was used in 5 additional patients without ulcer. Here again, it is difficult to be certain regarding the benefit obtained, since general measures, to be discussed later, were also used. It was felt, however, that the use of belladonna in a dose large enough to obtain physiologic effect contributed to the relief obtained. Mild sedatives were helpful in the initial stages of therapy and were usually liberally used. An occasional patient was given neostigmine, as suggested by Williams[5] in the treatment of heartburn of pregnancy. This drug was not of apparent benefit, but it was used too seldom to permit one's judging its value.

Aside from the dietary regulation necessary for the treatment of ulcer, when this was present, the diet of these patients was changed only to the extent of eliminating foods which their own experience had indicated would cause discomfort. As noted already, these were usually such items as fried foods and spices. Some patients were able to resume judicious use of these after their heartburn had been relieved, but others found it necessary to restrict the use of certain specific foods indefinitely. The relief of constipation, largely by the instruction in the development of hygienic bowel habits, was incorporated in the general program, when this was indicated. Although 10 patients stated that some decrease in heartburn occurred when normal bowel movements were obtained, it was difficult to be certain regarding the importance of this.

It is our impression that the most significant phase of the treatment of heartburn was discussion with the patient regarding the nature of his problem, explanation of its functional nature, education in proper eating habits and, when necessary, adequate psychotherapy. Our records indicate that this approach, which may be labeled as "therapeutic discussion," was not only helpful in 34 of the patients treated but that it made the major contribution to relief. The program of education in eating habits included instructions concerning reduced speed of eating, adequate time for meals, the proper spacing of meals, discouragement of the practice of getting most of the day's food at one large meal and the avoidance of excessive fluids with meals. The patients were also instructed in methods of stopping air swallowing by adding to the aforementioned instructions avoidance of carbonated drinks and chewing gum and suggestions that they make a voluntary effort to stop belching. The educational program was well accepted by most patients.

Psychotherapy of a very superficial type formed part of the general program. It usually consisted of explanations concerning the effects of tension, discussion with the patient of various situations causing emotional disturbances and the encouragement of free expressions of personal problems. Those patients with personality problems of a deeper variety were encouraged to seek psychiatric care. This was obtained by 3 of the patients with definite benefit.

In general, the results of this therapeutic program were gratifying. All of the 46 patients obtained definite relief, although some had recurrences of heartburn with extreme nervous tension. We believe, however, that recognition of the functional nature of heartburn permits the institution of therapy which will be satisfactory in the majority of patients who have this symptom.

### SUMMARY AND CONCLUSIONS

One hundred and twenty patients were studied to determine the incidence of heartburn and its clinical features. Among these patients, 46, or about 38 per cent, had heartburn. In 26, heartburn was severe enough to be considered a major symptom.

Heartburn was often described with difficulty by patients but was usually a burning discomfort diffusely localized behind the lower part of the sternum, often radiating upward along the course of the esophagus. Heartburn was often associated with other gastrointestinal symptoms, of which acid regurgitation, belching, nausea and epigastric pressure were most troublesome.

Nervous tension was apparently the commonest immediate precipitating cause of heartburn. Sensitivity to certain foods—such as fats and spicy foods—also frequently induced heartburn, but the role of foods in this respect was apparently not due to specific allergy. Hiatal hernia was the only organic gastrointestinal disease encountered in these patients in which heartburn seemed to be a specific symptom. Otherwise, there was no relation between heartburn and gastrointestinal disease. Heartburn was not a symptom of ulcer. It was not dependent on the degree of gastric acidity. Heartburn is probably produced by alterations in the tonus of the lower part of the esophagus. In these patients this seemed most frequently induced by faulty eating habits, but in 8 of the 46 patients with heartburn the symptom was possibly a psychosomatic manifestation and an expression of tension and emotional disturbance.

The therapy of heartburn should be directed toward the relief of the factors which have produced the underlying esophageal functional disturbance. This usually necessitates correction of poor eating habits. In those patients in whom the symptom is of psychogenic origin, appropriate psychotherapy is indicated.

### ABSTRACT OF DISCUSSION

Dr. David J. Sandweiss, Detroit: Sugarman and I studied 50 consecutive private patients who complained of or admitted heartburn; in addition, my co-workers and I studied the records of 50 patients selected at random in the outpatient department. Of the 100 patients 7 per cent had esophageal pathologic conditions, 3 per cent gastric ulcer, 47 per cent duodenal disease, 12 per cent colon disturbances and 13 per cent biliary tract disease. Two per cent of our patients attributed their heartburn to smoking or chewing tobacco. Five per cent were found to have nongastrointestinal condition (1 case of early pregnancy, 1 of bronchiectasis, 1 of malignant hypertension and 2 with coronary spasm). In 11 per cent of our patients no pathologic condition was found (though 3 of these 11 patients were found to have ventral or inguinal hernia). With regard to the clinical significance of heartburn, Dr. Tumen infers that functional states are the commonest causes of heartburn since 74 per cent of his patients responded to discussion therapy. There is no doubt that many of the patients in our series have tensional states in addition to the disease found. Not only may one list all cases in which there was "no pathologic conditions found" as "tension cases" but also the group with irritable colon and several others. There are many who would classify all patients with duodenal ulcer as falling in this group. The question might be asked, therefore, whether the tensional state or the disease found is responsible for this symptom. I do not believe that this question can be answered definitely with the data presently at hand. Until otherwise proved I am inclined to incriminate the gastric or duodenal ulcer, the biliary tract disease, the irritable colon and the like. One may, however, definitely say that while heartburn in some patients may be a psychosomatic manifestation and may respond to "therapeutic discussion" when no organic disease is found, heartburn in general should be looked on as a symptom of major importance, since more frequently than not organic disease will be found which requires a great deal more attention than discussion therapy.

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[5] Williams, N. H.: Variable Significance of Heartburn, Am. J. Obst. & Gynec. 42: 814, 1941.

Dr. John H. Fitzgibbon, Portland, Ore.: We are living in a psychosomatic age. While recognizing the necessity for emphasis, I believe that organic conditions are overlooked frequently because of overemphasis of the psychosomatic. We had a discussion this morning of hiatus hernia, which is commonly acompanied by heartburn. I should like to add a few remarks in regard to the endoscopic diagnosis of hiatus hernia. In the short esophagus, there is an organic condition in which regurgitation is an outstanding symptom. Stenosis of the cardia frequently results and not uncommonly is associated with ulceration. The patients may complain of heartburn for many years. Without proper examination the condition is usually overlooked. In the short esophagus, the esophagoscope is of more value than the gastroscope, giving a direct view of the cardia. Unless the stricture is too tight, gastric mucosa can usually be seen beyond the cardia. Twelve years ago my co-workers and I began the gastroscopic examination of patients suspected of having hiatus hernia. Several were discovered that had been missed entirely by roentgen examination. We soon found that roentgen examinations were more effective if the patient were examined in the gastroscopic or left-sided position. On deep inspiration part of the upper end of the stomach is sucked through the hiatus into the thorax. In that position the barium preparation is regurgitated more easily. In the gastroscopic appearance of typical hiatus hernia, there is a constriction at the level of the diaphragm and gastric mucosa is seen above and below. Not all hiatus hernias are easily demonstrated. At times erosions may be seen. In 1 case of sliding hernia, I observed hypertrophic gastritis at the level of the diaphragm. In addition to this organic condition, one must consider as a cause of heartburn the wide hiatus which has been mentioned previously. Heartburn is an indefinite term. The patient may be talking about something other than what the physician has in mind. It sometimes accompanies achlorhydria as well as acid gastric secretion. The patient may experience a different sensation that you or I might accept as heartburn. In persons who are regurgitators, who have complained of heartburn over a period of years, organic lesions of the esophagus may develop. A boy of 18 complained of heartburn for several years. He was placed on a diet and liquids were reduced. Eighteen years later he was still complaining of heartburn plus distress on swallowing. At that time a narrowing of the middle part of the esophagus was observed roentgenographically. A ring of erosions and definite constriction was seen through the esophagoscope. I believe that this was a case of regurgitation which caused erosions of the esophagus. I would emphasize the need for adequate search for all possible organic factors in cases of heartburn.

Dr. Anthony Bassler, New York: There seems to be a significant note of organic disease brought into this subject. Two or three years ago one of my associates carried out an extensive study on hearburn (which has not been published). We felt that true heartburn was most often produced by a derangement within the stomach rather than in the lower portion of the esophagus, a derangement between the acid fundus end and the more alkaline pyloric end. There is in this functional disturbance (usually brought about by one's taking adverse foods or fluids) a condition of affairs in which the acidity runs high because of neutralization deficiency in the pyloric end. We also in that connection made mucous studies, in lipozyme particularly, and we were able to prove that so far as the effect of lipozyme on the stomach was concerned, it was not nearly so distinct as it was in the intestinal canal.

Dr. Sidney A. Portis, Chicago: It is presupposed that in heartburn a very thorough organic study will be made. No one is going to dismiss heartburn as a simple symptom without that approach to the patient. From the so-called functional disturbances, and disturbed physiologic balance, a large group of these patients may have dyskinesia of the gallbladder, which in turn produces a reverse peristalsis of the stomach. In answer to Dr. Fitzgibbon's remarks that we in gastrointestinal medicine are taking the easier path and sliding out under the influences of the psychosomatic approach, may I call attention to the fact that heartburn may be conversion hysteria *in many patients?* I have seen heartburn in patients with histamine-free achlorhydria. One cannot dismiss this question of heartburn in patients in whom there are no organic observations, and all of you are well acquainted with the fact that in these patients symptomatic relief is difficult to obtain. Too little is understood about the mechanisms of conversion hysteria in the esophagus. We do know that it is of a definite clinical significance. When esophagoscopic, gastroscopic and roentgenologic observation has revealed no disease, the physician should consider that there may be a functional disturbance which originates in the emotional centers and is projected into that portion of the gastrointestinal tract. Many patients have symptomatic disturbances of the gastrointestinal tract that do not respond to ordinary methods of investigation. If the physician is not certain about the organic phase, the patient certainly should be interrogated as to the possible source of trouble, because that trouble is just as real, and the patient is just as sick as the patient who comes in for duodenal ulcer or any other organic disease.

Dr. Hyman I. Goldstein, Camden, N. J.: Diocles (350 B. C.) described heartburn as "acid, 'acrid,' and painful eructations." Galen (130-201 A. D.) quoted Diocles, the symptoms having been given just as they are today. Sir Gilbert Blane (1749-1834), a naval physician, on March 1, 1796, one hundred and fifty-two years ago, discussed the subject and advised treatment with milk of magnesia, mild alkalies and calcareous earths, to correct high gastric acidity, to prevent serious gastric disease and to relieve the patient of these complaints.

Dr. Henry J. Tumen, Philadelphia: Dr. Cohn and I do not believe that heartburn is a new problem. Since, however, we are what might be called general practitioners of gastroenterology, we daily see patients who have symptoms difficult to relieve because of the unsatisfactory state of our knowledge of the mechanisms causing them. Heartburn is a symptom of this type. We are convinced that heartburn is not caused by organic gastrointestinal disease. Dr. Sandweiss has listed the various organic diseases observed in his patients who had heartburn. We believe that such observations are coincidental and that the diseases found do not cause the heartburn. Although the incidence of heartburn varies, we wished to stress the relative frequency of its occurrence and to emphasize its "functional" nature and its importance as a psychosomatic manifestation. It is obvious that patients with heartburn should be studied for the purpose of discovering any organic diseases which they may have, such as ulcer or gallstones. If these are found, they must be treated, but heartburn is not likely to be relieved by one's focusing the entire attention on an organic disorder. Dr. Sandweiss is correct in emphasizing the need for additional studies to explain the mechanism causing the heartburn. Little has been done to investigate the reaction of the esophagus to emotional factors. Some years ago Faulkner reported on the esophagoscopic visualization of responses of the esophagus to psychic trauma. Such studies should be repeated, and there should also be investigations of the esophagus to determine changes in its tonus and motility in relation to the existence of heartburn. Our own study is a crude one, based entirely on clinical impressions. It has seemed important to us, however, to emphasize what we believe to be the essential cause of heartburn. A therapeutic approach based solely on an "organic viewpoint" will often fail to relieve the patient *suffering with this troublesome symptom.*

# CARCINOMA CELLS IN PROSTATIC SECRETIONS

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Cancer of the prostate accounts for 8,000 deaths each year in the United States and is clinically the second commonest cancer in men.[1] The condition is usually detected with the examining finger,[2] a procedure which is rather accurate for well advanced carcinoma but which is not accurate for early questionable lesions. Colby[3] found the impression gained from digital examination to be in error in 8 of 34 patients with early lesions who underwent radical perineal prostatectomy. McHeffey[4] found experienced urologists 88 per cent accurate when they made the clinical diagnosis of prostatic cancer in patients who needed surgical treatment for urinary obstruction. To detect early malignant lesions with the examining finger presupposes that all carcinomas arise in the posterior regions of the gland. Kahler,[5] in a detailed pathologic study of malignant lesions of the prostate, noted more instances of carcinoma arising in the anterior and lateral lobes than in the posterior lobe.

Several methods of biopsy are available for the diagnosis of prostatic carcinoma, but they all leave much to be desired. Biochemical methods for the diagnosis of carcinoma of the prostate have not proved to be of much value for early diagnosis. The elevation of acid phosphatase appears in few cases without evidence of osseous metastasis.[6] The excretion of the 17-ketosteroids, which is linked with production of testosterone and secondary sex characteristics, has been observed to be unaltered in carcinoma of the prostate.[7]

The cytologic diagnosis of carcinoma based on the examination of secretions has in recent years become popular, since the work of Papanicolaou[8] on vaginal secretions. Cellular diagnostic procedures have become established in some laboratories in the diagnosis of carcinoma of the uterus[9] and lungs.[10] The diagnosis of malignant disease from a study of secretions is not new, and in the urinary tract a case of tumor of the bladder in which the diagnosis was made by examination of the urine was reported by Sanders[11] in 1864. Until recently, the most extensive work on the diagnosis of malignant disease of the urinary tract on the basis of a study of the urine was published by Quensel[12] in 1918; in this work he included cases of tumor of the kidney, bladder and renal pelvis, with illustrations. More recently, Papanicolaou and Marshall,[13] Papanicolaou[14] and Daut[15] have reported finding cells of prostatic carcinoma in the urine.

Review of the literature failed to disclose any mention of a study of malignant cells in prostatic secretions previous to the report in 1931 by Mulholland.[16] Mulholland studied a series of patients who were not suspected of having a malignant disease and another series of patients with clinically malignant lesions of the prostate. He observed abnormal cells in 77 per cent of the second group but refrained from calling them carcinoma cells.

Herbut and Lubin[17] in 1947 published the second article to appear in the literature dealing with malignant cells in prostatic secretion. They used the Papanicolaou technic of staining and obtained the specimens by the standard method of prostatic massage. Prostatic secretions from 100 patients were examined, and a diagnosis of carcinoma of the prostate was rendered 17 times. The diagnosis was confirmed histologically in 10 of these cases. In only 1 case was the diagnosis made when the disease was not evident clinically, but in this case the diagnosis was not proved histologically. These authors set forth two criteria for the diagnosis of carcinoma from examination of prostatic secretions: (1) the presence of an unusual number of multicolored pavement cells and (2) the presence of cancer cells. Emphasis was placed on the staining qualities of the cytoplasm, and in 1 case the diagnosis was made on the basis of the multicolored pavement cells without cancer cells being present.

Further study on the diagnosis of prostatic carcinoma based on examination of the prostatic secretions seems justified because of the present inadequate methods of biopsy, the inaccuracy of clinical diagnosis and the chance that the results of study of the prostatic secretions may permit an earlier diagnosis to be made. The importance of early diagnosis depends at present somewhat on whether one believes in radical perineal prostatectomy or not, but it is felt that, were earlier more accurate diagnosis possible, such procedure might enjoy greater application. With the increase in life expectancy (twenty years since 1900),[18] carcinoma of the prostate is expected to be an ever increasing problem.

## OBJECT OF THE STUDY

This study was conducted to demonstrate further that carcinoma of the prostate can be diagnosed by

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Read before the Section on Urology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

Fellow in Urology, Mayo Foundation (Dr. Albers); from the Section on Surgical Pathology (Dr. McDonald) and the Section on Urology (Dr. Thompson), Mayo Clinic.

An abridgment of a thesis submitted by Dr. Albers to the Faculty of the Graduate School of the University of Minnesota in partial fulfilment of the requirements for the degree of Master of Science in Urology.

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examination of prostatic secretions. Other information sought for concerned the accuracy of this test in regard to prostatic carcinoma in general and well differentiated prostatic carcinoma in particular, the criteria for the diagnosis based on a study of the prostatic secretions, the diagnosis of prostatic malignancy before it is clinically evident and the components of prostatic secretions which might be confused with malignant cells.

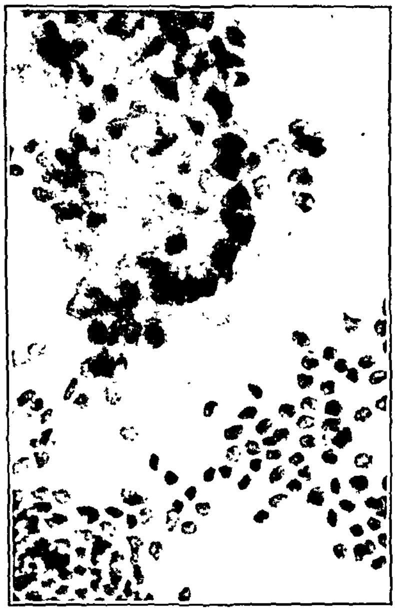

Fig. 1.—Smear made by expressing tissue from a prostatic carcinoma showing a comparison between benign and malignant prostatic epithelial cells (hematoxylin and eosin × 430).

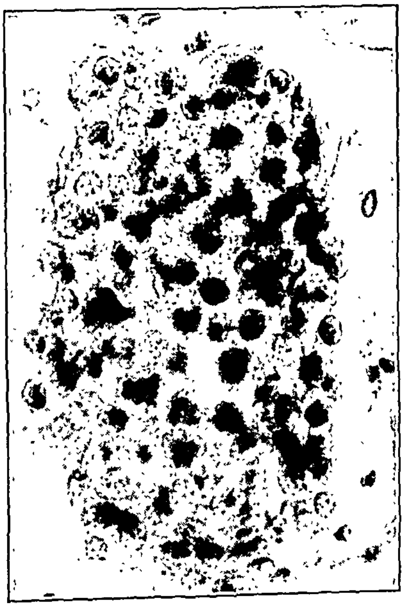

Fig. 2.—Clump of carcinoma cells in the prostatic secretion of a patient with a poorly differentiated carcinoma. The mitotic figure may be noted (hematoxylin and eosin ×430).

## METHODS AND MATERIALS

*Technic of Making Smears and Fixing.*—Prostatic secretions were obtained by the customary method of prostatic massage, and a drop of secretion was placed near the end of each slide. This was spread in a circular manner with an applicator. Before drying, the slides were immersed in an alcohol-ether mixture (equal parts of 95 per cent alcohol and ether) in Coplin jars. An attempt was made to prepare at least four slides for each patient. These slides were left in the fixative for not less than thirty minutes.

*Staining.*—The slides were passed through three strengths of alcohol (80, 70 and 50 per cent) and then through tap water. They were then either allowed to dry or were started on the rest of the staining procedure immediately. The technic used was a routine hematoxylin-eosin method with certain shortcuts,[10b] but any routine hematoxylin-eosin technic should be satisfactory after some experience has been obtained.

*Examination of Slides.*—All slides from each patient were examined at 100 power, the mechanical stage being used to assure complete coverage. Any suspicious cell was examined under 430 power for identification and, when considered worthy, was marked with ink for further reference. In general, it took about twenty to thirty minutes to cover adequately four slides, particularly if no malignant cells were seen. When malignant cells were present, they were usually found on the first slide, and sometimes the diagnosis could be made in a few seconds.

*Secretions Studied.*—Initially, in order that acquaintance with the prostatic epithelial cells in secretions of both benign and malignant prostates might be had, smears made by expressing, on slides, pieces of prostatic tissue removed at transurethral resection were studied. In all, about thirty slides were studied, comprising benign conditions and the four grades of cancer of the prostate (Broders' classification). Then the prostatic secretions from two series of cases were studied. Series 1 consisted of 100 patients with clinically benign prostatic hypertrophy, all scheduled for transurethral resection, and series 2 comprised 41 patients with clinically malignant disease of the prostate, most of whom had obstructive symptoms and were scheduled for operation. Only one specimen was taken in each case.

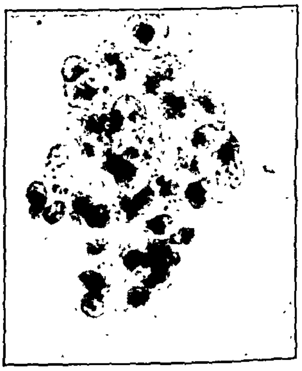

Fig. 3.—Clump of carcinoma cells in the secretion of a case of nonclinical prostatic carcinoma in which the cells are well differentiated (grade 2) (hematoxylin in eosin × 430).

## OBSERVATIONS AND RESULTS

*Characteristics of Secretions* (figs. 1 through 5).—Benign secretions contained few cells except when prostatitis was present. The cells were recognized as polymorphonuclear leukocytes, large mononuclear cells (apparently blood monocytes) and squamous, transitional and prostatic epithelial cells. The leukocytes usually predominated. Prostatic epithelial cells were recognized easily when they were in clusters but with difficulty when they appeared as single cells. Clusters of more than 5 prostatic cells were uncommon and mitotic figures were not seen in any of the proved benign secretions.

Malignant secretions (figs. 2, 3 and 5) contained benign cellular components in variable amounts, but usually the amount of prostatic epithelium was increased. In this study, every secretion called "positive" for carcinoma cells contained clusters of malignant cells. In poorly differentiated carcinomas, single carcinoma cells were also plentiful. In the well differentiated carcinomas, the cells were not very typical and the presence of clusters of cells were considered essential for the diagnosis.

With variation depending somewhat on the degree of differentiation, the characteristics of the carcinoma cells, whether as single cells or clumps of cells, were: enlargement of the nuclei, crowding of the nuclei when the cells were in clusters (fig. 1), variation in the size of the nuclei (fig. 5 *A*), decrease in the relative amount of cytoplasm and indefiniteness of the cell border (fig. 5), hyperchromicity of the nuclei, prominent nucleoli (fig. 5 *B*) which were either dark or pale and mitotic figures (fig. 2), which were seen in about one third of the poorly differentiated carcinomas.

Confusing components of prostatic secretion were many, and the time spent in distinguishing them from malignant cells varied. The nuclei of squamous and transitional epithelial cells are large, and when the cytoplasm stains poorly these cells appear to have large nuclei and to lack cytoplasm. The nuclei may even contain pale nucleoli, but usually the similarity of these nuclei to those of other typically squamous cells and the lack of hyperchromicity were revealing.

*Results of Examination of Prostatic Secretion for Malignant Cells Compared with the Results of Microscopic Examination of Surgically Removed Prostatic Tissue in 41 Cases of Clinical Carcinoma of the Prostate*

| | Cases | |
|---|---|---|
| Secretion obtained | | 24 |
| Secretion positiv | 13 | |
| Secretion positiv , | 6 | |
| Secretion negative, tissue positive | 1 | |
| Secretion positive, tissue negative | 1 | |
| Secretion negative, tissue negative | 3 | |
| Secretion not obtained | | 17 |

A very confusing cell-like structure was found when spermatozoa were seen in the smears (fig. 4). These structures appeared to consist of hemogeneous dark blue nuclei with very eosinophilic cytoplasm. Even nucleoli were apparent at times. These cell-like structures were easily recognized most of the time, but gave considerable difficulty until experience was gained. They were seen in 14 of 100 cases of benign hypertrophy. Early in the study, 3 patients were tentatively considered to have carcinoma cells in the secretion, but they were all discovered to have benign lesions at transurethral resection. For further check, every piece (about 400) of tissue removed from these three glands, which weighed 27, 14 and 23 Gm. respectively, was sectioned by means of the frozen tissue technic, and no carcinoma was found. In an effort to locate the origin of these artefacts, smears were made from freshly removed seminal vesicles, epididymides and testicles. Nothing comparable was observed.

Confusing clumps of well differentiated prostatic epithelial cells were seen in the secretions of 4 patients who had clinically benign prostates. One of these 4 patients was later proved to have carcinoma of the most differentiated type (Broders'), and one rather definitely had a benign prostate, as indicated by the fact that every piece of 28 Gm. of tissue removed transurethrally, which the surgeon felt made up practically the whole gland, was checked with the aid of the frozen tissue technic and found to be benign. The other 2 of the 4 patients had to be considered as having benign prostates on the basis of the available evidence. The clumps of cells seen in the secretions from the malignant gland were no more, and perhaps even less, malignant appearing than those from the other 3. In the proved benign gland, sections showed some acini filled as a result of hyperplasia of the epithelium, an observation which offers a possible explanation for the clumps seen.

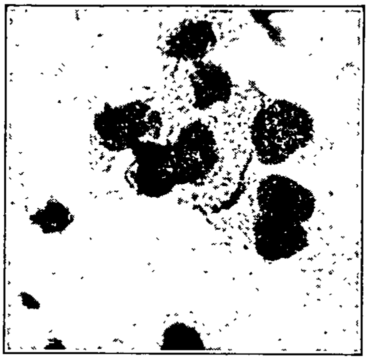
Fig. 4.—Secretion from a benign prostate showing the structures commonly seen, with spermatozoa. These structures may be confused with carcinoma cells (hematoxylin and eosin × 865).

Smears of expressed tissue were observed to be similar to smears of prostatic secretions from the same gland, except that in smears of tissue the prostatic epithelium predominated, leukocytes were few and nuclear detail was relatively poor. Figure 1 shows both benign and malignant cells in one of these smears, from a poorly differentiated carcinoma.

*Results of a Study of Secretions in 100 Cases of Clinically Benign Prostatic Hypertrophy.*—Of the 100 cases in which a diagnosis of benign hypertrophy was made preoperatively, carcinoma cells (fig. 3) were seen in the secretions of 3. The observations in these 3 cases were confirmed pathologically at transurethral resection. Similar histologic pictures were presented on examination of sections of tissue, the degree of malignancy being graded 2 (Broders' method). In these 3 cases symptoms, which were similar and referable to the urinary tract, included frequency, nocturia, urgency, smallness of stream, difficulty in starting the stream and some burning. The ages of these 3 patients fell in the fifth and sixth decades.

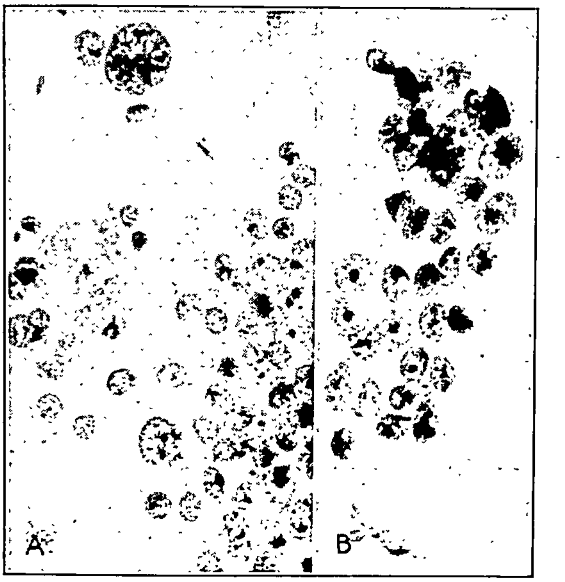

Fig. 5.—*A*, Prostatic secretion from a poorly differentiated carcinoma in which practically all cells seen are malignant, showing decided variation in size (hematoxylin and eosin ×430). *B*, carcinoma cells in secretion from a clinically malignant gland. Carcinoma was not found in removed tissue. Nucleoli may be noted (hematoxylin and eosin × 430).

In a fourth case in this series the prostate was found to be malignant (grade 1) on histologic examination. There were small glands that lacked papillary infolding; there was lack of stroma, and it was difficult to distinguish the cells from normal cells. However, the secretion from this patient was not considered diagnostic when it was compared with the secretion from benign prostates that showed, on section of tissue at surgical removal, hyperplasia of the epithelium and resultant filling of some of the acini.

*Results of a Study of Secretion in 41 Cases of Clinical Carcinoma of the Prostate* (table).—The cases in this series in which secretions were not obtained or in which no proof on examination of prostatic tissue was obtained were, clinically, all cases of advanced carcinoma of the prostate. Many of the patients had metastasis, and 5 of these from which secretions were not obtained had undergone resection previously.

The patient whose prostatic secretions failed to reveal carcinoma was observed, on examination of prostatic tissue, to have carcinoma of the most highly differentiated grade (grade 1).

In the 1 case in which prostatic secretions were positive for carcinoma cells (fig. 5 *B*) and the prostatic tissue did not show carcinoma, every piece of 19 Gm. of tissue removed at transurethral resection was sectioned and examined without carcinoma being found.

Of the cases in which both secretion and tissue were positive for carcinoma, in 2 the lesions were well differentiated carcinomas showing gland formation but malignant changes in the cells (grade 2), and in the rest the lesions were poorly differentiated carcinomas (grades 3 and 4). In 4 cases there was some question preoperatively as to whether the patient had a malignant lesion.

## COMMENT

The present study has demonstrated that carcinoma cells, the presence of which justifies the diagnosis of carcinoma of the prostate, can be found in prostatic secretions. There were many cases in which prostatic secretions were not obtained, and it seems worth while to point out that in all of these cases the lesion was unquestionably carcinoma of the prostate according to clinical evidence, 5 of the prostates having been previously resected. Since the usefulness of this test is directed at the cases of early questionable lesions and since these secretions were being studied only for the purpose of obtaining experience in recognizing malignant components, forceful attempts at obtaining secretions did not seem justified. There was no difficulty in obtaining secretions in the cases in which the presence of carcinoma was merely questioned or not suspected. Therefore, failure to obtain secretions is not expected to be an important issue in the effort to make an early diagnosis of cancer of the prostate. In an occasional case a second massage may be required before a satisfactory specimen is obtained.

The question of dissemination of carcinoma by massage of a malignant gland, which arises when this diagnostic procedure is used, cannot be answered. However, it is hard to conceive that massage would spread carcinoma more than does transurethral resection or aspiration biopsy, and there is no evidence in the literature that spread by those procedures occurs.

It appears from this study that the most differentiated grade of prostatic carcinoma, in which there are small glands that lack papillary infolding and cells that are difficult to distinguish from normal (grade 1), will not be detected with this test. Two such cases were encountered, and the lesion in neither could be called carcinomatous on the basis of evidence obtained from examination of the secretions. These probably comprise about 20 per cent of all prostatic carcinomas.[5] The prostatic carcinomas that were a little less differentiated, showing gland formation but presenting definite malignant changes in the cells (grade 2), were readily detected. The more poorly differentiated carcinomas (grades 3 and 4) were easily detected when only a few malignant cells were seen. The series of prostatic carcinomas studied is too small to allow conclusive statements as to the accuracy of this test, but it appears that about 80 per cent of these carcinomas should be detected when secretions are obtained. Except for grade 1 lesions, in this study there was good correlation between the observations on examination of secretion and the observations on examination of tissue. In the 1 exception carcinoma was not revealed in the tissue removed at transurethral resection, but the clinical picture was that of malignant disease and the secretion was so typical of carcinoma that a laboratory diagnosis of carcinoma was deemed justifiable.

An attempt was made, in several patients who required retention catheters, to obtain prostatic secretions at the time the catheter was removed for operation. As a rule these secretions were unsatisfactory, owing to the great amount of pus. Mulholland[16] had the same experience. This raises the question of whether severe prostatitis may mask carcinoma in respect to the study of secretions. The increased cellularity that results from the presence of pus makes the procedure more time consuming, but, in the present study, caused no error in diagnosis.

Little mention has been made of the study of the cytoplasm of the prostatic cells as an aid in the diagnosis of malignancy. It is felt from this study, in which the hematoxylin-eosin stain is used, that the diagnosis of carcinoma cells in prostatic secretions is primarily a nuclear diagnosis and also that squamous cells offer no help in the diagnosis. Several carcinoma cells, preferably in clusters, should be seen as the basis for the diagnosis; diagnosis based on the presence of single cells would be hazardous.

## SUMMARY

Clinical and laboratory investigations have been conducted to evaluate further the study of prostatic secretions as a routine diagnostic procedure. Studies were carried out on smears made by expressing pieces of prostatic tissue, on smears of prostatic secretions in a series of 100 cases of benign prostatic hypertrophy in all of which operation was performed and on smears in 24 of 41 cases of clinical carcinoma of the prostate in most of which histologic proof was available. All of these secretions were stained by means of a hematoxylin-eosin technic. In the course of the study, artefacts were observed which required further investigation.

## CONCLUSIONS

1. Carcinoma cells can be found in prostatic secretion, and finding them justifies the diagnosis of carcinoma of the prostate.

2. It appears that the most differentiated prostatic carcinomas, showing small glands that lack papillary infolding and consisting of cells which are difficult to distinguish from the normal (grade 1), will not be detected with this procedure. There appears to be good correlation between the results of the study of secretions and the results of the study of tissue sections in the detection of the other grades of prostatic carcinoma which show less differentiation.

3. Carcinoma cells were detected in 3 of 100 cases of clinical benign hypertrophy; therefore, such cells can be detected when carcinoma is not suspected clinically.

4. The presence of carcinoma cells and, in the case of the more differentiated carcinomas, the presence of clusters of carcinoma cells are essential for the diagnosis of prostatic carcinoma on the basis of examination of prostatic secretions.

5. Nuclei of squamous and transitional epithelial cells, clumps of benign prostatic epithelial cells and, especially, cell-like structures which appear in conjunction with spermatozoa may be confused with carcinoma cells until experience has been gained.

## ABSTRACT OF DISCUSSION

**Dr. Russell D. Herrold**, Chicago: The authors bring up the question of metastatic dissemination through manipulation in the collection of specimens for cytologic study. I agree that such dissemination is unlikely. In reviewing the successive roentgenograms of patients with carcinoma of the prostate seen between Jan. 1, 1941, and Jan. 1, 1948, my co-workers and I found that it was exceptional for demonstrable metastasis to occur in patients who did not have such evidence on the original examination. Our first observations with this method of diagnosis were concerned chiefly with nonsuspicious conditions in the higher age groups, in order to become more familiar with normal or abnormal cells associated with benign hyperplasia or inflammatory lesions. We found it helpful here to utilize the Wright stain. Also, in patients with proved carcionma clumps of cells like those of cancer were frequently seen and were later observed after the Papanicolaou stain. We are making further comparisons to determine whether smears examined after the Wright stain was used may serve as a useful screening process to rule out the necessity of the Papanicolaou method for lesions which on digital palpation impress one more as inflammatory than as malignant. I should like to emphasize the statement by the essayist that the identification of cancer cells is primarily a nuclear diagnosis based preferably on the observation of clusters of such cells. Since we have had comparatively few patients with lesions of the questionable type in which further confirmation could be made by postoperative histologic sections, we are not in a position at this time to comment on the exact value of preoperative cytologic study. However, the results of our examinations of secretions from patients with known lesions indicate that this method is an additional procedure of value to digital palpation, aspiration biopsy, roentgenologic study for metastasis and acid phosphatase determinations of the serum. Should this method become popular there will of course be many false negative reports, as with aspiration biopsy. This is not of too much concern, but false positive reports might have serious consequences. Therefore, observations from a single examination should be conservative until a great deal of experience with this method has been had. In the collection of prostatic secretions we prefer to obtain the whole amount in a container; then, after thorough shaking, the spreads are made, thus assuring a fraction of the whole. If insufficient secretion is obtained the patient is instructed to void about ½ ounce (14 Gm.) in a wide mouth 1 ounce bottle, and this is centrifuged and smears made of the sediment. If centrifugation cannot be done promptly, the specimen should be kept in the refrigerator.

**Dr. Donald Albers**, Rochester, Minn.: Dr. Herrold asked about the lapse of time after one of these slides is fixed before it can be stained adequately. I do not know the maximum that will still allow one to get good distinction in the cells. I know that some of the slides we have fixed for thirty minutes have been in the dry state for two or three days without deteriorating to any particular degree. I emphasize that it is important that one leave them in the fixative for thirty minutes. In the laboratory when these slides are to be held over and stained later they are usually just left in the fixative.

# DIAGNOSTIC SIGNIFICANCE OF FAILING VISION

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In this paper my real purpose is not to be instructive medically, in the sense of trying to convey the ophthalmologic pictures of numerous ocular diseases. I do hope, by outlining some of the close interrelations of general medicine and ophthalmology in one subdivision of the latter specialty, to combat in a small way the tendency toward the isolation of ophthalmologic from general medical practice.

I believe that both ophthalmologists and optometrists have useful and legitimate places in eye care, but I am strongly opposed to the efforts of many optometrists to become the ophthalmic consultants for the medical profession and to eliminate the ophthalmologist from the picture of ocular care except for surgical and local treatment of eye disease. This can result only in general practitioners', in all but the great population centers, having to take over the surgical and other treatment of the eye, a course that will be detrimental to medical welfare and is surely not desired by such practitioners. Furthermore, I do not believe that the optometrist with his limited medical background can serve satisfactorily as a medical consultant.

The oculist's practice may be divided into four main subdivisions: diagnosis, surgical treatment, local treatment and refraction. It is in the first named that general medicine and ophthalmology are most closely linked. It is possible to discuss, and only briefly, a few of the many diseases that have both general medical and ophthalmologic pathologic aspects, and no attempt is made in this paper at a comprehensive study.

In order to approach the subject in a somewhat logical manner, causes of failing vision are discussed as they affect the cornea, iris, ciliary body and choroid; retina, optic nerve, lens and vitreous, and, finally, failure from disuse.

### CORNEAL CAUSES OF VISUAL FAILURE

Considering corneal causes of visual failure, tuberculosis is no rarity. It is usually considered an allergic manifestation. The treatment of choice in addition to rather ineffective local medication is the general treatment of tuberculosis; it is the family practitioner who knows most about the patient's particular situation and is best able to give advice to him and to insist that it be carried out.

Corneal degeneration is not infrequent in old persons. The central areas, anteroposteriorly, may become less transparent. Not rarely nodules appear in the posterior glass membrane that look like tiny raindrops on the rear surface of the cornea when seen with the corneal microscope. Epithelial degeneration also occurs, and for none of these diseases does the ophthalmologist have a cure. Corneal transplantation, which seems so logical, is not ideal, because it is often followed by a degeneration of the graft similar to that in the section removed.

Ulcers are another important cause of visual failure, and they occur throughout life, their causes varying from gonorrhea in infancy through phlyctenular keratitis in youth to malnutrition of age. In preadolescence

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there is the interstitial keratitis of syphilis, indicating the general treatment for syphilis and the local use of atropine and dark glasses.

### DISEASES OF IRIS, CILIARY BODY AND CHOROID

Concerning diseases of the iris, ciliary body and choroid, allergic reactions are seen as frequently in ophthalmologic practice as in every other department of medicine. They occur chiefly in the eye in the form of conjunctivitis and lid reactions, the former the so-called vernal conjunctivitis, and as such they are seldom responsible for failing sight. But in scleritis and uveitis they are important causes for gradual loss of vision.

In tuberculosis the lesion in the uveal tract, that is, iris, ciliary body and choroid, may originally have been the seat of the organisms derived from other foci; against this idea it must be mentioned that bacilli are seldom seen in sections of these eyes, though it is also true that such eyes as are removed have been long subject to the disease and tissue reaction may have destroyed the organisms.

The most dreaded form of uveitis is sympathetic ophthalmia, which is probably due to sensitivity to uveal pigment. The oculist almost never has the materials for making allergic tests and must, therefore, refer patients with these diseases to the medical practitioner both for help in finding the offending allergen and for desensitization if possible. The future would seem to hold some possibilities for nonspecific desensitization, and for leadership in the search for this the ophthalmologist looks to the medical investigator. Differential diagnosis of allergic uveitis depends on tests for allergy and the elimination of other more easily identifiable inflammations, such as leprosy, syphilis and sympathetic diseases; syphilis is suggested by a positive serologic reaction and sympathetic disease by a history of injury.

### RETINAL CAUSES OF DIMINISHED VISION

Retinal causes of diminished vision are numerous. Diabetes affects the eye late in the course of the disease, particularly in the form of chorioretinitis, though undoubtedly some cataracts have this as their cause. Diabetes, therefore, may be the cause of gradual loss of sight, and, though the onset is late, once it has started it is implacable; its presence is to be suspected in gradual visual failure in the middle years. There is no pain, and there are no external manifestations. Often the first ocular symptom is visual failure, and when this occurs the chorioretinitis is usually so severe that it is beyond curing. It may take place in fairly well treated patients, and, unfortunately, the usual therapy for diabetes is completely ineffective with respect to retinal lesions.

In cardiovascular-renal disease is found perhaps the closest bond between general medical practitioners and ophthalmologists. In these conditions one looks for both sudden and gradual visual loss, the former especially associated with large retinal hemorrhages and the latter with arteriosclerosis and small hemorrhages and exudates. Probably the eyegrounds show the changes of malignant hypertension as early as they are to be noted anywhere in the body. Obviously, the treatment rests with the physician, and the ophthalmologist's part is only that of observation and of keeping the internist informed of the retinal condition in order to protect as well as possible the vision of the patient.

Degenerative changes that so frequently accompany old age need special consideration. It is fortunate that the study of geriatrics is assuming increasing importance. To combat the gradual visual loss associated with retinal degenerations, one must combat old age itself. The retina suffers in this condition primarily from malnutrition and probably an accumulation of waste products. The struggle against old age demands sedulous perseverance. As old age attacks, it seeks every weakness in the patient's defensive armor, and it is the physician's duty to find and fill these chinks before the enemy penetrates too far. For the retina everything that will help circulation and metabolism is worth while, such as infra-red radiation, long-acting vasodilators and vitamins for vitamin deficiencies. For example, most old persons need more thiamine chloride than they normally get. They may also need aids to elimination. The oxidation of the tissues should be accelerated. For helping the old, who through degenerations are fast losing vision, their most prized possession, the ophthalmologist turns to his medical confrere.

### OPTIC ATROPHY

Optic atrophy is a major reason for failing sight. Among its most important medical causes are syphilis, hypophyseal tumor and multiple sclerosis. In all of these diseases the ophthalmologist is often the first to make the diagnosis, but his part in the developing picture thereafter is largely advisory from the visual point of view, and he depends on the general medical practitioner, or in some cases the surgeon, for the treatment. In about 80 per cent of supratentorial neoplasms one expects to find choked disks, whereas in hypophyseal tumors atrophy of the papillomacular bundle is the rule. In multiple sclerosis the onset may be associated with an optic neuritis, but oftener one sees the later picture of temporal pallor of the nerve head with loss of central vision.

Failure of sight from optic atrophy may be sudden, as from toxemias from drugs, such as quinine or methyl alcohol, or gradual as from injudicious use of some arsenicals, such as tryparsamide.[8] In the administration of the last named drug no precaution is as important as mapping visual fields frequently. Diminution of these is a positive indication for discontinuance of the drug.

How much can be accomplished toward aiding vision in optic atrophy from syphilis? The results in my own patients by any form of treatment have not been encouraging; those by induced malarial infection have seemed best, but a poor best.

### PERIPHERAL FIELD CHANGES

Peripheral field changes occasionally bring the patient to the eye physician, but it is surprising how far these may progress before attracting the patient's attention, as in the case of chronic simple glaucoma, the most frequent cause of blindness of middle and old age. This subtle disease creeps in without causing pain or redness of the eyes and is noticeable only to a discerning patient before it is too late by a diminution in the visual field or halos about lights. Glaucoma is probably associated with some hidden systemic disease. The only thing that the general practitioner as yet can do to aid in the fight against this disease is to help in its early discovery by using his ophthalmoscope intelligently and by urging his patients to consult their ophthalmologists regularly through the dangerous years, even as the ophthalmologists should urge periodic examination for the determination of the medical status of their patients.

### CATARACT

Senile cataract is another important factor in visual failure. Undoubtedly a nutritional basis will be found for cataracts, as many have suggested, and medical research may bring this to light. It is already known, for example, that such drugs as naphthalin and dinitrophenol can produce them and that hypoparathyroidism may be a cause.

With the modern intracapsular method of extraction, an immature cataract can be as easily removed as a mature one. Patients are best pleased with the result when operation is delayed until ordinary print can no longer be read with the better eye. Rarely in cases other than those in which industrial safety or overripening of the cataract demand earlier operation should this be done, because the patient is disappointed if he finds postoperatively that the eye which was not operated on is still the more useful, and, truly, the best eye, minus its crystalline lens, is a poor substitute for the normal. Good results should be obtained by operation in from 90 to 95 per cent of cases. Fusion usually follows a good surgical outcome when both eyes are operated on, and the double operation—each eye on a different date—is advocated unless extreme age or other urgent reason indicate otherwise.

### DISUSE

Greatly diminished vision from lack of use of an eye occurs in infancy and childhood and, if not treated promptly, is incurable, but if intelligently handled it can almost always be materially helped. The family physician should insist that such a child be referred immediately to an oculist. Temporizing is always costly and often disastrous.

### COMMENT

I suggest that the ophthalmologist be used as a true consultant for all that he may be able to offer diagnostically and not just to determine visual fields or for an opinion as to whether a disk is choked or not, even as the ophthalmologist should not ask the general practitioner for an opinion on a patient's blood pressure only or for some specific test, but rather should ask for a full medical opinion of the nature of the case. In such a mutual consultative relationship will the best interest of the patient be served. The ophthalmologist needs the general practitioner and, in turn, can be of help to him.

## ABSTRACT OF DISCUSSION

Dr. Paul O. Hagemann, St. Louis: A diversity of medical conditions may affect vision. Patients suffering from degenerative disease may have visual difficulty and lesions of the cornea and the retina. In those with nutritional deficiency corneal lesions and lesions of the lens may develop. In those with metabolic disturbances retinal lesions, such as diabetic retinopathy, may develop, and in patients with tetany lenticular opacity may develop. When using certain drugs, one is obligated to keep in mind possible eye complications due to hypersensitivity, such as lenticular opacities and optic atrophy. Those who have been studying the treatment of syphilis feel that tryparsamide no longer has a place in the treatment of neurosyphilis in view of the excellent results being obtained with penicillin. In regard to patients with vascular disease, much can be learned about the state of the vascular system by the observation of the vessels in the fundus. For patients being considered for sympathectomy, valuable prognostic information can be given by the ophthalmologist. Not infrequently the differential diagnosis between malignant hypertension and cerebral neoplasm is difficult. Here, again, the ophthalmologist can help in this differentiation. In a recent survey of blindness due to infection, it was pointed out that general or systemic infections are four times as prevalent a cause of blindness as is local infection of the eye. Tuberculosis can be such a cause, with involvement of the cornea, uvea or retina; syphilis may be, with involvement of the cornea, uvea or optic nerve, and foci of infections are regarded as a common cause of this type of disorder. The obligation of the general practitioner, then, is to survey the patient for such foci—common ones, such as infected teeth, tonsils and sinuses. Not infrequently one sees eye manifestations in rheumatic fever and in rheumatoid arthritis. Principally this is in the form of a uveitis. This subject has been investigated to some extent, and it is felt that there are certain reasons that these conditions occur in the same disease process. There are great anatomic similarities between the ciliary processes of the eye and the synovial villi in joints. It is also of interest that in experiments with animals the incidence of arthritis as well as uveitis occurs in a far higher percentage of hyperimmune animals, emphasizing the allergic aspects of this subject. There is a reciprocal obligation between the ophthalmologist and the general practitioner. The ophthalmologist can help by classifying the disorders as they occur in the eye and also can supervise the local management.

# Clinical Notes, Suggestions and New Instruments

## EXTREME HYPERTENSION IN A CHILD CURED BY NEPHRECTOMY

### Report of a Case and Review of the Literature

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JULIUS M. GLASSER, M.D.
and
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Chicago

M. C., a girl aged 9, was first seen on Nov. 10, 1946, with a history of having awakened early in the morning complaining of generalized abdominal pain, followed by repeated attacks of vomiting. She had had three attacks of vomiting and generalized abdominal pain during the previous three months, each of which lasted about twenty-four hours and then cleared up completely. In addition, the mother stated that the child had complained of occasional headache and had nocturia and enuresis during the past two years.

Physical examination revealed a well developed, restless child, complaining of generalized abdominal pain. Temperature was 99.4 F., pulse rate 130 and regular and respirations 30 per minute. The abdomen was soft and there were no palpable masses, rigidity or tenderness. The blood pressure varied from 160 systolic and 130 diastolic to 175 systolic and 125 diastolic. Blood pressure in the right leg was 190 systolic and 152 diastolic and in the left leg 188 systolic and 140 diastolic. No abnormalities were observed on examination of the heart. Ophthalmoscopic examination revealed numerous hemorrhages on the disk and scattered throughout both fundi. There were many grayish white exudates in both macular regions.

The laboratory tests showed clear urine, specific gravity 1.010, albumin 1 plus and no red or white blood cells. The blood cell count showed 4,210,000 erythrocytes, hemoglobin 85 per cent Sahli (14.4 Gm.) and leukocytes 9,300, with 77 per cent polymorphonuclear cells, 20 lymphocytes and 3 monocytes. The roentgenogram of the heart and the electrocardiogram revealed no abnormalities.

The normal abdominal observations, the normal temperature and the blood cell count definitely excluded acute appendicitis;

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From the Pediatric and Urologic Services of Mt. Sinai Hospital, Chicago.

the high blood pressure in the upper extremities, the still higher pressure in the lower extremities and the normal cardiac observations excluded coarctation of the aorta. The history, the hypertension and the gastrointestinal observations pointed strongly to chronic nephritis and possibly impending uremia. An emergency test of the chemical content of the blood was then ordered and performed on the day of admission. It showed normal observations: urea nitrogen 13.6 mg., sugar 133 mg., chlorides 580 mg., calcium 10.8 mg. and carbon dioxide combining power 66 volumes per cent.

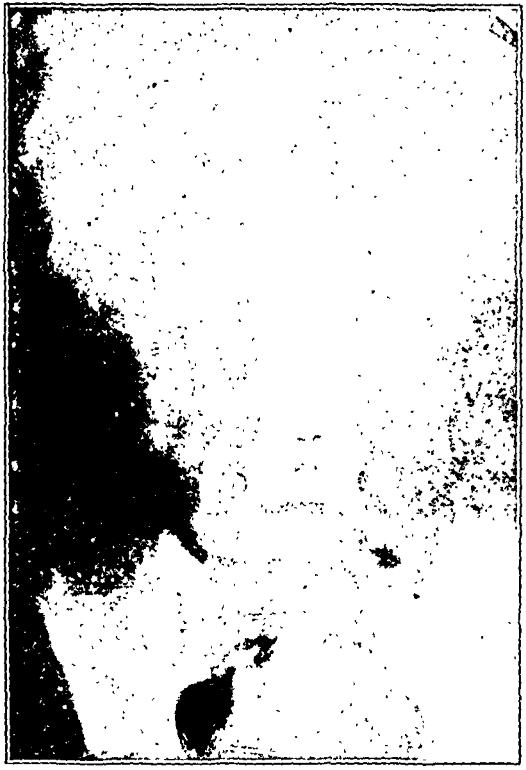

Fig. 1.—Intravenous pyelogram shows an enlarged but normal left kidney. On the right, the renal shadow cannot be visualized.

On the next morning, November 11, the child complained of a severe headache, and an ophthalmologist, Dr. Carl Apple, was called in. His observations were as follows: Both disks were edematous; the margins were obscured by edema, and both were moderately elevated, about 1½ to 2 diopters. Glistening stellate exudates were seen in both maculas, and between the right macula and disk were numerous dirty gray exudates. The retinal vessels crossed over these exudates uninterruptedly; a few of the exudates covered the retinal vessels. There were also numerous small rounded and flame-shaped hemorrhages, especially pronounced below the right disk and some in the periphery of the right fundus as well as between right disk and macula. In the left fundus, the exudates and hemorrhages were less pronounced. The retinal vessels in both fundi showed an auriculoventricular ratio of 1 to 3. Some of the smallest vessels were obscured by the retinal edema. The hemorrhages as well as the exudates were in the outer layer of the retina.

On the same day, the child had several generalized convulsions of several minutes' duration and the blood pressure rose to 200 systolic and 140 diastolic. A spinal puncture revealed a uniformly bloody fluid (nontraumatic). The fluid did not clot, sugar was 67 mg. per hundred cubic centimeters (with blood sugar of 121 mg.), and culture and smear as well as the reactions to the Wassermann and colloidal gold curve tests were negative.

Because of the normal observations of the urine and chemical content of the blood, a "Goldblatt" kidney or a pheochromocytoma was seriously considered.. We believed that an intravenous pyelogram was definitely indicated, because this was the only way in which the site of the involved kidney could be localized. Although the condition of the patient appeared desperate—in addition to the extreme hypertension, a cerebral hemorrhage developed and the blood pressure rose to 214 systolic and 164 diastolic—an intravenous pyelogram was performed, and Dr. Arendt reported as follows: Intravenous pyelogram (fig. 1) showed incomplete filling of the pelvis on the left side; however, the calyces appeared to be normal, without any dilatation or clubbing. The left renal shadow was considerably enlarged, but normal in contour. On the right, the renal shadow could not be visualized. There was a faint shadow suggesting a considerably contracted renal shadow. On the thirty minute roentgenogram there was a suggestion of a slight amount of contrast medium in the upper calyx of the right kidney. These observations indicated the presence of a hypoplastic or contracted right kidney, which was practically functionless, associated with an enlarged apparently normal functioning left kidney.

The diagnosis was unilateral involvement of the right kidney and an apparently normal left kidney. Cystoscopic examination showed the bladder to be essentially normal. The left ureteral orifice was identified and found to be normal. The right ureteral orifice was difficult to identify. Intravenously administered indigo-carmine appeared in good concentration from the left kidney in five minutes, but no dye was seen coming from the right ureteral orifice.

On November 15, the right kidney was explored. The whole kidney appeared diseased, and a right nephrectomy was done. The postoperative course was uneventful. Within twenty-four hours after the operation, blood pressure dropped to 160 systolic and 120 diastolic and within ten days had dropped to 128 systolic and 90 diastolic.

The pathologic report of the right kidney (Dr. I. Davidsohn) was as follows: The kidney, with a ureter of 6 cm. in length, weighed about 17 Gm. (fig. 2). The organ measured 5 by 2 by 1.2 cm. The capsule was stripped with some difficulty. The surface was grayish red and somewhat granular. The section surface revealed the parenchyma to be reduced, measuring between 4 and 6 mm. The cortex was rather thin, measuring about 1 mm., and throughout the parenchyma the walls of the blood vessels were outstanding and thickened. The pelvic fat tissue was increased. The pelvis itself was enlarged and dilated, as were the calyces. The mucosa was edematous and showed a few hemorrhages. The ureter was not dilated. The wall of the renal artery was gaping. There was an accessory artery near the upper pole, the lumen of which was also gaping.

Microscopic examination (fig. 3) revealed complete hyalinization of the glomeruli; the interstitial tissue was increased and heavily infiltrated with round cells. Only in a few places some islets consisting of tubules could be found. A large section contained only one glomerulus. The pelvic mucosa was thickened and heavily infiltrated with round cells which formed some follicles. Medium-sized and small arteries showed decided thickening of their walls. The diagnosis was pyelonephritic atrophy of the right kidney.

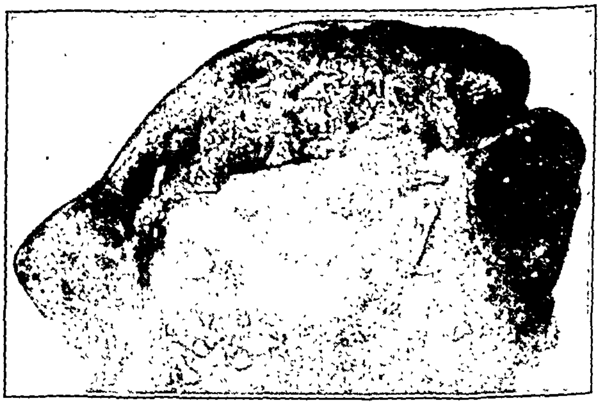

Fig. 2.—Close-up view, with pyelonephritic atrophy and petechial hemorrhages in the pelvis.

The patient was discharged from the hospital on the eleventh postoperative day, with a blood pressure of 134 systolic and 90 diastolic and normal urine and chemical content of the blood. The child was examined a number of times since then and when last seen, on Nov. 8, 1948, two years after the nephrectomy, the blood pressure was 125 systolic and 80 diastolic, the urine was normal and the blood contained 18 mg. urea nitrogen, 2.6 mg. uric acid and 0.8 mg. creatinine per hundred cubic centimeters. The report of the ophthalmologist, Dr. Carl Apple, on September 13 was: Right vision (unaided) was 1.0; left vision (unaided) was 0.4 — 2. With glasses right vision was normal and left vision was normal. The left eye converged 5 degrees. Fundoscopic examination showed normal appearance of the fundi. In the right macula there were several small dark pigment spots; in the left macula, there were about fifteen similar spots. There were no hemorrhages or exudates. The retinal vessels had a normal appearance.

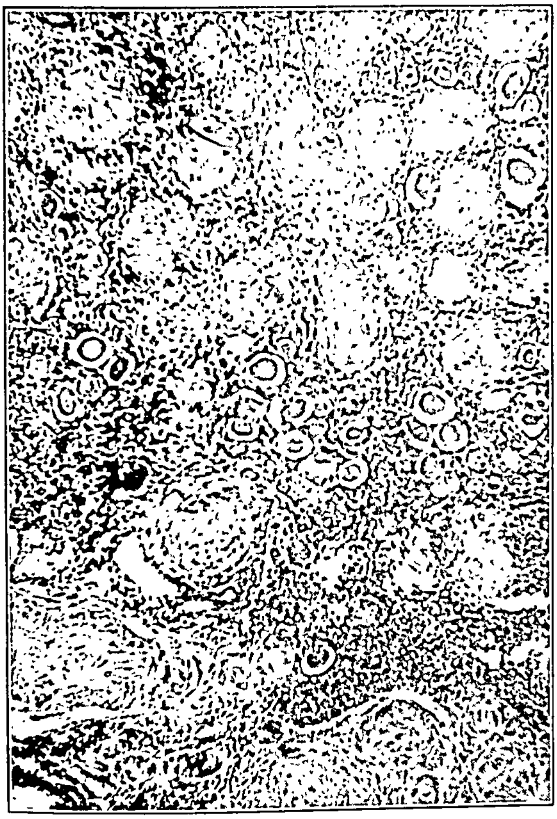

Fig. 3.—Chronic pyelonephritis. Hyalinized glomeruli with atrophic tubules and inspissated casts.

COMMENT

The experimental work of Goldblatt and his co-workers[1] precipitated great interest in the relationship between hypertension and certain types of unilateral disease of the kidney. Their work, confirmed by other investigators, consisted in the use of an adjustable silver clamp which permitted the degree of constriction of the renal vessels to be increased at will, thereby producing renal ischemia. With constriction of one renal artery there was a rise in the blood pressure for a variable length of time. With bilateral constriction of the renal arteries hypertension was maintained indefinitely. Later Goldblatt found that excision of an ischemic kidney at the height of hypertension following unilateral constriction of the renal artery resulted in a prompt return of the blood pressure to normal. No satisfactory evidence has been adduced that the nervous mechanism plays a part in the production of experimental hypertension.[2] The exact mechanism involved in the production of such hypertension is unknown, but it is believed that the ischemic kidney releases a pressor substance known as renin. This substance has been prepared and purified.[3] Renin is not in itself a pressor substance, but it reacts with a pseudoglobulin renin activator (hypertensinogen) to form a highly active substance named angiotonin (hypertensin). Angiotonin, when injected intravenously produced a sharp immediate rise in arterial pressure. It is believed by some investigators that the normal kidney either destroys the pressor substance or secretes an antipressor hormone.[4]

Numerous clinical reports have appeared in the literature with some conflicting opinions as to the merits of nephrectomy in unilateral renal disease. However, a thorough review of the literature reveals only 22 cases of hypertension in adults in which blood pressure has remained normal one or more years following operation.[5] In children, only 9 cases could be found in which the blood pressure had remained at normal level for at least one year following the operation; in 8, unilateral pyelonephritis was the cause of the hypertension, and in 1 an ectopic kidney with a smooth muscle plug in the renal artery was responsible for the hypertension (table).

In our case, atrophic unilateral pyelonephritis was the cause of the hypertension, and the successful result demonstrates that every case of hypertension in a child should be carefully studied; if a unilateral kidney involvement is found with the other kidney normal or showing compensatory hypertrophy, an immediate nephrectomy should be performed.

SUMMARY

Nephrectomy was performed in a child, 9 years of age, with extreme hypertension due to unilateral atrophic pyelonephritis. The blood pressure, the urine and the chemical content of the blood had remained normal for twenty-four months following the operation. The pronounced hemorrhagic retinitis noted before the operation was no longer present at the time of last examination.

*Data in Cases of Pronounced Hypertension in Children That Have Remained Normal for at Least One Year Following Nephrectomy*

| Author | Age, Yr. | Pre-operative Blood Pressure | Post-operative Blood Pressure | Time Elapsed Since Operation | Diagnosis |
|---|---|---|---|---|---|
| Abeshouse, B. S.: Surgery **10**:147, 1941 | 8½ | 160/100 | 120/82 | 7½ yr. | Pyelonephritis |
| Barny, J. I., and Suby, H. S.: New England J. Med. **220**: 774, 1939 | 10 | 185/130 | 98/60 | 21 mo. | Pyelonephritis |
| Bothe, A. E.: Urol. **39**: 611, 1938 | 7 | 130/ 90 | 110/65 | 4½ yr. | Pyelonephritis |
| Kennedy, R. L. J.; Barker, N. W., and Walters, W.: Am. J. Dis. Child. **69**: 160 (March 1945) | 12 | 225/178 | 110/85 | 5 yr. | Pyelonephritis |
| Higbel, D. R.: J. Urol. **51**: 466, 1944 | 12 | 180/110 | 120/80 | 13 mo. | Atrophic pyelonephritis |
| Leadbetter, W. F., and Burkland, C.E.: J. Urol. **39**: 611, 1938 | 9 | 155/105 | 105/65 | 3½ yr. | Ectopic kidney with smooth muscle plug in renal artery |
| Semans, J. H.: Bull. John Hopkins Hosp. **75**: 184, 1944 | 2½ | 200/134 | 98/62 | 3 yr. | Pyelonephritis |
| Wilson, C. L., and Chamberlain, C.T.: J. Urol. **47**:421, 1942 | 12 | 230/170 | 116/74 | 13 mo. | Atrophic pyelonephritis |
| Oster, J.: Acta med. Scandinav. **128**:42, 1947; cited by Poncher, H. G.: Year Book of Pediatrics, Chicago, The Year Book Publishers, Inc., 1948, p. 209 | 7 | 200/170 | 90/60 | 14 mo. | Hydronephrosis |

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[1] Goldblatt, H.; Lynch, G.; Hanzal, R. F., and Summerville, W. W.: Am. J. Path. **9**: 942, 1933. Goldblatt, H., and others: J. Exper. Med. **59**: 347, 1934.

[2] Goldblatt, H.; Gross, G., and Hanzal, R. F.: J. Exper. Med. **65**: 233, 1937. Page, I. H.: Am. J. Physiol. **112**: 166, 1935.

[3] Grossman, E. B.: Proc. Soc. Exper. Biol. & Med. **39**: 40, 1938. Helmer, O. M., and Page, I. H.: J. Biol. Chem. **127**: 757, 1939. Page, I. H.: Am. J. Physiol. **130**: 22, 1940.

[4] Harrison, T. F.: Tr. A. Am. Physicians **51**: 280, 1936. Rodcard, S., and Katz, L. N.: Am. J. M. Sc. **198**: 602, 1939.

[5] Sabin, H. S.: J. Urol. **59**: 8, 1948.

# TREATMENT OF FILARIASIS BANCROFTI WITH HETRAZAN®

## Follow-up Observations Fifteen Months After Treatment

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The preliminary results obtained with the administration of hetrazan® (1-diethylcarbamyl-4-methylpiperazine hydrochloride) to 26 persons with circulating microfilariae of Wuchereria bancrofti have already been published.[1] Although the dose and length of treatment were varied, as this was the first experience with this drug in human beings, the microfilariae in all instances rapidly disappeared from the blood stream, and in 13 of the 26 patients the smears were consistently negative from eight to eighty-three days after one course of treatment. In 4 of the cases there was clinical evidence of death of the adult worm. Little or no toxic effects following administration of the drug were encountered.

*Number of Microfilariae in Nocturnal Blood from Patients Treated with "Hetrazan"*

| Case No. | Amount of Drug Administered Three Times Daily per Kilogram of Body Weight, Mg. | Length of Treatment, Days | Microfilariae in 60 Cu. Mm. of Blood: Before Treatment | Months After Treatment: 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 17 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | 2 | 18 | 7 | .. | 1 | 0 | 0 | 0 | 0 | .. | 0 | 0 | 0 | .. | 0 | .. |
| 3 | 2 | 16 | 220 | 1 | .. | .. | .. | .. | 8 | .. | .. | .. | .. | .. | 4 | 14 |
| 4 | 2 | 22 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | .. | 0 | 0 | 0 | .. | .. | 0 |
| 5 | 2 | 11 | 27 | 0 | 3 | 3 | 5 | 2 | 1 | 1 | 0 | 0 | 1 | .. | 0 | 0 |
| 6 | 2 | 4 | 399 | 22 | 19 | 13 | 13 | 4 | 11 | 5 | 10 | 11 | 43 | .. | 2 | 3 |
| 7 | 2 | 6 | 142 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .. | 0 | 0 |
| 8 | 2 | 6 | 97 | 2 | 3 | 0 | 2 | 1 | 0 | 1 | 0 | .. | .. | .. | .. | 4 |
| 9 | 2 | 6 | 11 | 0 | 0 | 1 | 0 | 0 | .. | 0 | 0 | 0 | .. | 0 | .. | .. |
| 10 | 2 | 13 | 49 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .. | 0 | .. | 0 |
| 11 | 1 | 13 | 130 | .. | 2 | 4 | 4 | 1 | .. | 0 | .. | .. | .. | .. | .. | 1 |
| 12 | 1 | 14 | 111 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .. | 0 | .. | 0 |
| 13 | 1 | 12 | 100 | 11 | 20 | 30 | 13 | .. | .. | .. | .. | .. | .. | 4 | .. | 1 |
| 14 | 1 | 11 | 34 | 0 | 0 | .. | 1 | 1 | 0 | 5 | 1 | 4 | .. | 1 | .. | 0 |
| 15 | 1 | 13 | 538 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | .. | .. | .. | 0 |
| 16 | 0.5 | 11 | 40 | 9 | .. | 2 | 1 | 2 | 1 | 2 | 2 | 0 | .. | 0 | .. | 0 |
| 17 | 0.5 | 11 | 36 | 14 | 20 | 23 | 16 | 25 | 25 | 22 | 29 | 25 | .. | 13 | .. | 11 |
| 18 | 1 | 5 | 17 | 6 | 1 | 7 | 8 | 12 | 7 | 0 | 10 | 4 | .. | 3 | .. | 0 |
| 19 | 1 | 6 | 45 | 2 | 2 | 0 | 0 | 1 | 0 | 0 | 3 | 8 | .. | 6 | .. | 1 |
| 20 | 1 | 6 | 7 | 0 | .. | 0 | 0 | .. | 0 | 0 | 0 | 0 | .. | 0 | .. | 0 |
| 21 | 1 | 3 | 158 | .. | .. | .. | 39 | .. | .. | 82 | .. | 42 | .. | 57 | .. | 30 |
| 22 | 1 | 3 | 46 | 1 | 1 | 1 | 7 | 0 | 0 | 2 | .. | .. | .. | 5 | .. | 19 |
| 23 | 1 | 3 | 13 | 0 | 1 | 0 | 1 | 0 | .. | 1 | 0 | 0 | .. | 0 | .. | 0 |
| 24 | 1 | 5 | 21 | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| 25 | 1 | 5 | 11 | 4 | 0 | 2 | 0 | 1 | 6 | 0 | 3 | 4 | .. | 0 | .. | 0 |
| 26 | 1 | 5 | 20 | 7 | 4 | 13 | 6 | 3 | 20 | 22 | 21 | 18 | .. | 5 | .. | 4 |

Monthly follow-up examinations of the nocturnal blood of these patients have been performed during a period of fifteen months. At the end of this period the patients were given a physical examination with particular emphasis on the state of the lymphatic system and were questioned intensively regarding symptoms known to be associated with clinical filariasis.

The table records the results of the microfilarial counts performed from the third to the fifteenth month after treatment. Of the 26 original patients, 23 could be examined at the end of the fifteen month period. One patient (case 24) was lost track of when he moved to the United States. Two other patients (cases 2 and 9), who had shown persistently negative microfilarial counts for many months, failed to return for checkup after the thirteenth and the fourteenth month, respectively.

Thirteen of the 23 patients examined (56.5 per cent) showed negative microfilarial counts at the end of the fifteen month period. Also, these patients either had no microfilariae or an insignificant number of them at the time of the monthly examination. The remaining 10 had very low counts, in all cases considerably lower than the original values before treatment. The patients who had received the highest total dose of the drug were the ones showing persistently negative counts in all examinations, while those who received the lower total dosage were the ones presenting positive smears, though invariably with extremely low values. Presumably, and in the light of further experiences with this drug, this latter group received insufficient dosage. Even so, these insufficiently treated patients, who presented low counts three months after treatment, have shown no tendency to relapse, as their counts have persisted at low levels throughout the entire period of observation.

Twenty-two of the 23 patients remained free of symptoms referable to the lymphatic system which might be attributed to filariasis. One patient (case 7), seven months after treatment, had pain over the anterior aspect of the upper third of the left thigh and a tender nodular swelling at the femoral region. There was no fever, no redness of the overlying skin, no lymphangitis and no enlargement of the inguinal nodes. This swelling disappeared entirely within a week. Final checkup at the end of the fifteen months revealed no abnormalities. The 4 patients who had had nodular swellings early during treatment showed no evidence of residual disease of their lymphatic system when last examined.

### SUMMARY

*Thirteen (56.5 per cent) of 23 persons with microfilariae of* Wuchereria bancrofti *were found free of the infection as* evidenced by negative microfilarial counts performed fifteen

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From the Departments of Medical Zoology and Clinical Medicine of the School of Tropical Medicine, San Juan, Puerto Rico.

These studies were carried out with the financial aid of the Lederle Laboratories Division, American Cyanamid Company, Pearl River, N. Y.

[1] [illegible] and Hewitt, R.: Treat- [illegible] -Piperazine [illegible] ) 1947.

months after treatment with hetrazan® (1-diethylcarbamyl-4-methylpiperazine hydrochloride). The remaining 10 had very low counts, which had persistently remained at low levels since the end of the course of treatment. There was no increase in the number of microfilariae during the follow-up period in any of the patients which might suggest a relapse.

In general, the patients who received the highest total doses were the ones with negative smears at the end of the fifteen month period. The others probably did not receive sufficient amount of the drug to eradicate the infection entirely. All but one of the group of 23 patients remained symptom free. None of the patients showed evidence of disease in their lymphatic or other systems suggesting clinical filiariasis.

These observations would seem to indicate that hetrazan,® when given in adequate dosage to patients infected with W. bancrofti, cleared the blood stream of microfilariae for periods of at least fifteen months. There was no clinical evidence of residual lymphatic disease which might be attributed to the filaricidal action of the drug.

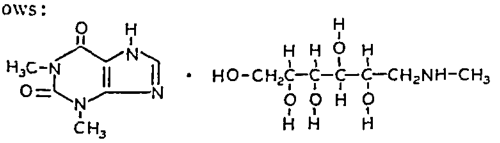
# Council on Pharmacy and Chemistry

## NEW AND NONOFFICIAL REMEDIES

*The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.*

Austin Smith, M.D., *Secretary.*

**THEOPHYLLINE-METHYLGLUCAMINE.—Glucophylline—Abbott.**—An equimolecular mixture of theophylline-U. S. P. ($C_7H_8N_4O_2.H_2O$) and methylglucamine ($C_7H_{17}NO_6$). Dosage forms of theophylline-methylglucamine contain not less than 95 per cent nor more than 105 per cent of the labeled quantities of theophylline and methylglucamine. The structural formula of theophylline-methylglucamine may be represented as follows:



*Actions and Uses.*—Theophylline-methylglucamine is identical in action and therapeutic purpose with aminophylline (theophylline ethylenediamine) U. S. P. over which it has no advantage. It is therefore similarly useful orally and by injection to produce the effects of theophylline when a more soluble salt than theophylline and sodium acetate is needed. It is employed orally as a diuretic and myocardial stimulant for pulmonary edema and paroxysmal dyspnea in conjective heart failure, and for the relief of Cheyne-Stokes respiration. It is also useful in the relief of acute bronchial asthma, particularly in patients who have become unresponsive to epinephrine. As with aminophylline, claims for its use in coronary or peripheral vascular disease and in hypertension are not recognized on the basis of available evidence.

*Dosage.*—Theophylline-methylglucamine represents about 50 per cent of theophylline, as compared to about 78 per cent contained in aminophylline U. S. P., so that the ratio of dosage to the latter is approximately 2 : 3. On this basis the dosage recommended for theophylline-methylglucamine should be about one and one-half times the dose ordinarily prescribed for aminophylline.

Orally, from 0.15 to 0.75 Gm. three or four times daily after meals, given continuously for only a few days at a time with intervening rest periods of one or two days. Intramuscularly, 0.75 Gm. in 2 cc.; intravenously 0.36 to 0.75 Gm. in 10 cc. to 20 cc. As with aminophylline, intravenous injection should be made slowly to avoid untoward effects.

*Tests and Standards.*—

Transfer a portion of powdered tablets or of solution, equivalent to approximately 0.35 Gm. of [illegible] a separatory funnel. Add 25 cc. of wa[illegible] T. S., and titrate to a faint red color [illegible] acid. Each cubic centimeter of tenth-normal hydrochloric acid is equivalent to 19.52 mg. of methylglucamine. The amount of methylglucamine found is not less than 95 per cent and not more than 105 per cent of the labeled amount of methylglucamine.

To the mixture that has been titrated in the separatory funnel add 4 drops of tenth-normal hydrochloric acid and extract with four portions of 25 cc., 20 cc., 15 cc. and 15 cc. of a mixture of three volumes of chloroform and one volume of isopropyl alcohol. Filter the extract through a small dry filter paper into a dried and tared evaporating dish. Wash the filter with a small amount of the extraction solvent and evaporate the combined extract and washings on a water bath. Dry the residue to constant weight at 100 C.: the weight of the residue, multiplied by 1.100, is equivalent to not less than 95 per cent nor more than 105 per cent of the labeled amount of theophylline U. S. P.

The theophylline employed in [illegible] preparations meets the requirements of t[illegible]

METHYLGLUCAMINE ($C_7H_1$[illegible] white to yellowish-white, odorless crystals which melt from 128 to 131 C. It is freely soluble in water, slightly soluble in alcohol, and practically insoluble in chloroform and in ether.

To 5 cc. of 5 per cent methylglucamine solution add 5 cc. of alkaline cupric tartrate T. S. and heat to boiling: no reduction of copper occurs *(absence of reducing substances).*

Dry about 1 Gm. of methylglucamine to constant weight at 100 C.: the loss in weight is not more than 0.1 per cent.

The specific rotation, [α]25/D, of a 10 per cent solution of methylglucamine in water is approximately — 16.3 degrees.

Ignite about 1 Gm. of methylglucamine, accurately weighed: the ash is negligible.

Dissolve 1 Gm. of methylglucamine in 25 cc. of water: the heavy metals limit (*U. S. P. XIII,* p. 657) is 20 parts per million.

The nitrogen content of methylglucamine when determined by the Dumas method is not less than 7.0 per cent or more than 7.2 per cent.

Transfer about 0.4 Gm. of methylglucamine, accurately weighed, to an Erlenmeyer flask and add 25 cc. of water and 2 drops of methyl red T. S. Titrate the mixture with tenth-normal hydrochloric acid. Each cubic centimeter of tenth-normal hydrochloric acid is equivalent to 19.52 mg. of methylglucamine. The amount of methylglucamine found is not less than 98 per cent, calculated to the dry substance.

Abbott Laboratories, North Chicago, Ill.

**Solution Glucophylline:** 0.366 Gm. in 10 cc. ampuls.

**Solution Glucophylline:** 0.732 Gm. in 2 cc. and 20 cc. ampuls.

**Enterab Tablets Glucophylline:** 0.152 Gm. Each tablet is enteric coated with a resin prepared from stearic acid, phthalic anhydride and glycerine.

**Tablets Glucophylline:** 0.152 Gm. and 0.304 Gm.

U. S. patent 2,161,114 (June 6, 1939; expires 1956).
U. S. trademark 334,367. (Enterab)-U. S. trademark 353,674.

**DIHYDROXY ALUMINUM AMINOACETATE** (See New and Nonofficial Remedies 1948, p. 342).

The following dosage form has been accepted:

The E. L. Patch Company, Boston

**Tablets Alzinox:** 0.5 Gm.

**AMINOPHYLLINE-U. S. P.** (See New and Nonofficial Remedies 1948, p. 325).

The following dosage form has been accepted:

Zemmer Co., Inc., Pittsburgh 13

**Tablets Aminophylline:** 0.1 Gm. and 0.2 Gm.

**Enteric Coated Tablets Aminophylline:** 0.1 Gm. and 0.2 Gm. Each tablet is enteric coated with a mixture of keratin and shellac.

**DICUMAROL** (See New and Nonofficial Remedies 1948, p. 351).

The following dosage form has been accepted:

Schieffelin & Company, New York 3

**Tablets Dicumarol:** 100 mg.

Licensed by the Wisconsin Alumni Research Foundation.

**DIGITOXIN-U. S. P.** (See New and Nonofficial Remedies 1948, p. 267).

The following dosage form has been accepted:

Abbott Laboratories, North Chicago, Ill.

**Solution Digitoxin:** 0.2 mg. per cc., 1 cc. ampuls.

**Tablets Digitoxin:** 0.1 mg. and 0.2 mg.

**SODIUM ASCORBATE INJECTION-U. S. P.** (See New and Nonofficial Remedies 1948, p. 561).

The following dosage form has been accepted:

Kremers-Urban Company, Milwaukee 1

**Solution Sodium Ascorbate:** 100 mg. per cc., 2 cc. ampuls.

**ASCORBIC ACID-U. S. P.** (See New and Nonofficial Remedies 1948, p. 559).

The following dosage form has been accepted:

Kremers-Urban Company, Milwaukee 1

**Tablets Ascorbic Acid:** 1[illegible]0 mg.

been undertaken by numerous investigators. Hess[5] and his associates of Georgetown Medical School not only made accurate assays of the amino acid content of various egg proteins but a parallel determination of their growth-promoting properties. Whole egg, whole white and whole yolk proteins were defatted and dehydrated by repeated treatments with acetone, alcohol and ether. The final products were analyzed for nitrogen, sulfur, cystine, cysteine, methionine, phenylalanine, tryptophane, threonine, methionine, histidine, lysine and arginine. The only essential amino acids not assayed were leucine, isoleucine and valine, which are present in such large amounts in eggs[6] that it is difficult to imagine an inadequate amount of these amino acids in any of their preparations.

Groups of 8 or 9 weanling rats were each fed 10 per cent of one of these proteins added to 90 per cent of their routine nonprotein mixture. By the end of two weeks the average gain in weight was calculated for each group of rats. This gain divided by the average total protein intake for the two week period gave the protein efficiency ratio for the selected protein.

Thus in one group of rats fed 10 per cent commercial egg white the average initial weight was 49.8 Gm. per rat. This increased to an average of 104.1 Gm. by the end of two weeks, an increase of 54.4 Gm. The average total food intake for the two week period was 161.1 Gm., containing 16.1 Gm. of protein; 54 divided by 16.1 equals 3.37, the protein efficiency ratio for this protein. Thus determined, the ratio was found to vary from 3.51 to as low as 2.33 for the seven protein preparations tested.

The most important comparison was between two samples of whole egg proteins prepared by different technicians. Tested on groups of rats, sample A gave a protein efficiency ratio of 3.12, while sample B gave only a 2.33 ratio. Thus, sample A was 50 per cent superior to sample B in nutritive value. Analyses showed that within the limits of the experimental error the two samples were identical in amino acid content, except for the one amino acid, cysteine. This was present in normal amounts in sample A, but absent from sample B. Addition of 0.25 per cent cystine to sample B raised its nutritive value from 2.33 to 2.38. Here we have two protein samples, sample A (3.12) and cysteinized sample B (2.38), containing identical amounts of all known essential amino acids. Nevertheless, sample A has a nutritive value 50 per cent higher than cysteinized sample B.

From this Hess concluded that in addition to the amino acids, other factors play a role in the nutritive value of proteins. Whether or not these unknown egg protein factors are identical with Zucker's[7] "zoophein" or with the "animal protein factor" of Bird[8] has not been determined. Casein is known to contain "zoopherin," from which it can be extracted with alcohol.[9] The Bird "animal protein factor" is an essential factor in poultry nutrition, and is found in particularly high concentration in cow manure.

# Current Comment

## COMMITTEE ON MEDICAL SERVICES OF THE ARMED FORCES

On January 12, Mr. Forrestal, Secretary of Defense, released a part of the report of the Committee on Medical Services of the Armed Forces, known as the Hawley Board, which has been studying these services for many months. The members of the committee, in addition to Gen. Paul Hawley, include Maj. Gen. R. W. Bliss, Surgeon General of the Army; Admiral Clifford A. Swanson, Surgeon General of the Navy; Maj. Gen. Malcolm C. Grow, Surgeon General of the Air Force, and Admiral J. T. Boone. The portion of the report thus far released concerns programs for hospitalization in the armed forces and for improvement in the utilization of existing hospital facilities. Much time has been given to studying the existing hospitalization The recommendations concern the actual details of utilization of many Army, Navy and Air Force hospitals. Actually the committee makes 71 specific recommendations for reducing and eliminating military hospitalization in the United States. Many of the recommendations concern patients who are now transferred from dispensaries or station hospitals to general hospitals of their own service or to general hospitals of another service. Such transfers will minimize the number of beds required and, coincidentally, of course, the number of physicians and other trained hospital personnel necessary for the conduct of an adequate service. The committee recommends the retention of 11 Army and 26 Navy hospitals in the United States and their continued use as general hospitals. Many of these are on Army or Navy reservations and function also as station hospitals. Detailed recommendations are made for the consolidation of hospitals in Panama, Trinidad, Puerto Rico, Cuba, Bermuda, Germany, Hawaii, Kwajalein, Alaska, Guam and Saipan. Without doubt, effective implementation of the recommendations of the committee will result in a great saving in personnel and funds without lowering in any way the standards of hospital care for members of the armed forces.

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[5] Hess, W. C.; Kramke, E. H.; Fritz, J. C., and Howard, H. W.: Proc. Soc. Exper. Biol. & Med. **67**: 552, 1948.

[6] Mitchell, H. H., and Block, R. J.: J. Biol. Chem. **163**: 599, 1946.

[7] Zucker, L. M., and Zucker, T. F.: Proc. Soc. Exper. Biol. & Med. **68** 432 (July-Aug.) 1948.

[8] Rubin, M., and Bird, H. R.: J. Biol. Chem. **163**: 387, 393, 1946. Bird, H. R., Yearbook of Agriculture, 1947, p. 235.

[9] Bowland, J. P.; Emsminger, M. S., and Cunha, T. J.: Arch. Biochem. **16** 257, 1948.

# ORGANIZATION SECTION

## Rural Health

The Board of Directors of the American Farm Bureau Federation, a member of the Advisory Committee to the Committee on Rural Health of the American Medical Association, unanimously adopted the following statement at its annual convention in Atlantic City, N. J., Dec. 16, 1948:

The quality of American medical service is very high. Unfortunately, American medical service at its best reaches only a relatively small part of the rural areas of the country. The shortage of physicians, hospitals and other medical facilities in the rural areas is not due to less need for medical care than in cities. The primary factors which most influence adequate medical facilities and which attract physicians are community environment and economic opportunity.

There is a wide gap between existing medical knowledge and the health practices in many rural areas. Rural people must first know their existing facilities and whether or not they are adequate. They must know the meaning of high standards in hospital and medical care. They must be taught the advantages of budgeting the costs of medical need as they do other household expenses. They must know the significance of health hazards around the farm home as they pertain to disease, including the relationship between animal diseases and human health. They must know what services offered by public and voluntary agencies are available to them, and they must discover their own health needs and formulate their own program.

For this reason we heartily commend the health programs already under way in some of our State Farm Bureaus, and urge other states to follow as soon as practicable. We also recognize promise in the long range health education program carried on by the Agricultural Extension Service. We urge the Land-Grant colleges to expand this program to the extent that they have an extension health education specialist on their staffs.

We suggest that our State Farm Bureaus give serious consideration to the desirability and possibility of offering scholarships whereby physicians, surgeons, dentists and nurses will be encouraged to establish themselves in rural areas. We believe the problem of improved health can best be met by the voluntary organizations of cooperative health associations which will encourage people to take advantage of the services available for any medical or dental care which they may require.

We stand ready to cooperate with the Rural Health Committee of the American Medical Association and other groups in providing better voluntary medical care for rural people. We urge the continued interest and cooperation of the states in cancer, tuberculosis, venereal disease, poliomyelitis, crippled children, heart and rheumatic fever programs. We also endorse the American Red Cross National Blood Program and recommend active participation by our Farm Bureau members. We favor voluntary plans providing medical,. health, dental and hospital insurance. We urge that facilities of medical schools be expanded, and every effort be made otherwise to train more physicians, surgeons, dentists, nurses, technicians and general practitioners and public health doctors. We recommend the full cooperation of rural people with our established health units and existing health programs, including immunization, clinics, nutrition courses and home nursing. We believe greater emphasis should be given to preventive medicine. We suggest that in the states where permissive legislation for the creation of public health units does not exist, state farm bureaus secure the enactment of such legislation.

We favor reasonable appropriations for grants-in-aid to states for maternal and child health programs, and also to assist states in the expansion of needed public services and facilities. To the extent federal grants are needed by way of assistance, such grants should be made to states on the basis of need, with state governments responsible for the allocation and administration of these funds.

The American Farm Bureau Federation has consistently supported the Hill-Burton Hospital Construction Act, and we will support the continuation of this Act and appropriations necessary to achieve the objectives of the law. The American Farm Bureau Federation urges the state farm bureaus to cooperate in the administration of the Act in their respective states. In the administration of the Act, agriculture must have adequate representation on national and state advisory councils.

## Washington Letter

*(From a Special Correspondent)*

Jan. 24, 1949.

### Hawley Board Report Coincides With Successor's First Meeting

The first meeting of the new Armed Forces Medical Advisory Committee was held January 11-12, coincident with the release by Secretary of Defense Forrestal of the most comprehensive report yet submitted by the Hawley Board. The latter, known officially as the Committee on Medical and Hospital Services of the Armed Forces, is due to be dissolved in the near future and its functions assumed by the new advisory group, whose chairman is Charles Proctor Cooper of New York. At its first session, held in the Pentagon, the myriad problems confronting the military medical departments—man power, consolidation of facilities, postgraduate education and others—were discussed but no action was taken. A subcommittee was appointed to draw up plans for organization and procedures and report to the committee's next meeting, scheduled for February 24-25. Its members are Maj. Gen. Raymond W. Bliss, Army Surgeon General; Drs. M. C. Pincoffs and Edward D. Churchill, and Mr. Cooper, committee chairman.

The Hawley Board report proposes closing of three large general hospitals (two Army and one Navy); recommends joint staffing by Army and Navy personnel of all hospitals that are used in common by members of the armed forces; urges joint utilization of civilian consultants and specialists; favors consolidation and common use of specialty treatment and rehabilitation centers, as in neuropsychiatry and tuberculosis, and looks askance at utilization of civilian, nonmilitary institutions for hospitalization of service men.

General hospitals suggested for closing are McCornack General at Pasadena, Calif., and the 22nd (Army) General, Guam, where adequate naval facilities are available, and the naval hospital at Honolulu, whose patient load would be absorbed by the Army's new Tripler General Hospital. Three other Army general hospitals would be reduced to station hospital status: 183rd at Anchorage, Alaska; Fort Totten, on Long Island, and Tilton, at Camp Dix, N. J. In addition, the Hawley Board urged reduction of forty-eight smaller station type medical facilities to the status of dispensaries (giving outpatient care only). Secretary Forrestal, in making the 75 page report public, emphasized that it has not yet been approved or reviewed by him. He added that "the character of the recommendations clearly indicates that important progress is being made toward effective coordination of the military medical services."

### Rules Liberalized on Immigration of Refugee Physicians

The Displaced Persons Commission has modified certain regulations on admittance into the United States of "DP's" who are licensed physicians, following receipt of numerous letters protesting that it is difficult for the sponsoring organization to state exactly where the prospective immigrant will reside or be professionally engaged.

Henceforth, recognized voluntary and public agencies and institutions, when submitting assurances in behalf of displaced persons who are licensed physicians, will not be required to specify where the subject will live or the place where he will work. The sponsoring agency is obliged to report to the Commission every six months with reference to the physician's resettlement; that is, where he is residing and whether he is practicing his profession. The new type of blanket assurance will be accepted only from recognized voluntary and public agencies. Individual sponsors of displaced physicians are still required to furnish the more specific assurances.

According to a statistical study which will be included in the Displaced Persons Commission's report to Congress in early February, only 2 per cent of the first 19,500 assurances received were in behalf of professional men and women in medical, public health and allied fields, physicians, dentists and nurses chiefly. The ratio was even less with respect to semiprofessional persons in the same field.

# Medical Legislation

## STATE LEGISLATION

### Idaho

**Bill Introduced.**—H. 20, to amend the workmen's compensation act, proposes to authorize the **industrial accident board** to order an examination of the injured employee by a qualified physician selected either by the employee or by the board at the expense of the parties or as a charge against the industrial adminstration fund.

### Illinois

**Bill Introduced.**—S. 11 proposes the establishment of an Illinois State **Cancer Hospital** for the care and treatment of persons afflicted with cancer and an appropriation of $5,000,000 for the construction, operation, maintenance and equipping of such hospital.

### Maryland

**Bills Introduced.**—H. 5 proposes to require physicians, hospitals, nurses, etc., to **report to the sheriff** or state police the treatment of any person for an injury or for an act of violence under circumstances not presently known, giving the person's name and address, a description of the injury and any other facts concerning the affair which might assist in the detection of crime. S. 15 proposes the creation of a **Commission on Alcoholism** to establish and supervise clinics throughout the state for the treatment of persons afflicted with alcoholism and especially with chronic alcoholism. S. 16 proposes the creation of an **anatomy board** to have charge of the distribution of certain dead bodies which come under its control. Such bodies shall be used only for the promotion of the medical sciences. S. 23 proposes regulations for the licensing of **mental hospitals** throughout the state.

### Michigan

**Bills Introduced.**—H. 1 proposes the creation of a division of **professional and vocational licensing** to have the powers and duties formerly devolved upon, among others, the Board of Examiners of Basic Sciences, the Board of Chiropractic Examiners, the Board of Registration in Medicine and the State Board of Osteopathic Registration and Examination. S. 12 proposes the creation of a new department to be known as the **department of labor and industrial relations** and, among other things, creates a workmen's compensation and an unemployment compensation appeal board.

### Minnesota

**Bill Introduced.**—H. 22 proposes certain amendments to the law requiring physicians to report to the state board of health the names of persons placed under their care for the **treatment of tuberculosis.**

### Montana

**Bill Introduced.**—H. 9 proposes the enactment of a Montana Unemployment Compensation Disability Law to compensate in part for the **wage loss** sustained by individuals unemployed because of sickness or injury.

### Nebraska

**Bill Enacted.**—Legislative Resolution 2, passed January 10, memorializes the Congress of the United States to refrain from imposing upon the citizens of the nation **any form of compulsory insurance** or any system of medical care designed for national bureaucratic control.

### New York

**Bills Introduced.**—A. 49, to amend the education law relating to the issuance of certificates to ophthalmic dispensers, proposes to authorize the granting of such certificates without examination to persons who have been continuously conducting their own business in which they are engaged in **ophthalmic dispensing for at least fifteen years.** A. 92 and S. 64 propose to make it unlawful for any **public or semipublic hospital,** supported wholly or partly by public funds, to refuse to permit any physician or surgeon duly licensed by the state to diagnose, treat or operate on any patient in such hospital or to refuse admission to any hospital of any patient who has been recommended to be sent to or who has been sent to any such hospital by any such licensed physician or surgeon. A. 136 proposes an appropriation of $2,500,000 to defray the cost of **research in the cause and cure of cancer.** A. 276 proposes an appropriation of the sum of $2,000,000 toward the cost of **milk and lunches** furnished to children in the elementary and secondary public schools of the state. S. 1 proposes the enactment of a **disability compensation law.** S. 52 and A. 88, to amend the law relating to the medical examiner of Westchester County, propose to authorize the appointment of a **pathologist-medical examiner** to have charge of a newly created department of laboratories and research. The pathologist-medical examiner shall be a pathologist and microscopist experienced in his profession and shall meet such minimum qualifications of professional and administrative education and experience as may be required by the public health council of the state of New York. S. 94 proposes to authorize the use of the **injunctive process** in the enforcement of the medical practice act.

### Oklahoma

**Bill Introduced.**—H. 54, to amend the hospital licensing law, proposes to exempt therefrom any place maintained primarily for the purpose of providing a home or place to live for **indigent aged persons.**

### Rhode Island

**Bills Introduced.**—H. 507 proposes to authorize the appointment of a chief medical examiner to **perform all autopsies** and act as state pathologist. Such person would be required to be a doctor of medicine, qualified in pathology, with at least one year of medico-legal training. The medical examiner would, under the proposal make examinations on the bodies of such persons only as appear to have met their death from violence, or suddenly when in apparent good health, or when unattended by a physician or in any suspicious or unnatural matter or as the result of an abortion or suspected abortion. H. 513 proposes the enactment of a Rhode Island **Cash Sickness Compensation Act.** This appears to be a complete revision of the law enacted in 1942.

### Tennessee

**Bill Introduced.**—H. 182 proposes to authorize the granting of divorces **on the ground of incurable insanity.** The insanity must be certified by three physicians who are well recognized authorities on mental diseases, one of whom is the superintendent of the institution in which the insane party is committed and the other two of whom are appointed by the court before whom the action is pending.

### Utah

**Bills Introduced.**—H. 11, to amend the law relating to **physical examinations of employees,** proposes that an employer shall not require any employee or person applying for employment to submit to or obtain a physical examination unless the employer pays all costs and expenses incident thereto. S. Res. 1 proposes a Senate resolution memorializing the Congress of the United States to defeat any legislation introduced in Congress which provides for socialized medicine or **national compulsory health insurance** and which will result in a destruction of private initiative and free enterprise system in this country. S. 30 proposes the creation of a **state board on alcoholism** to cooperate with the Utah State Committee for Education on Alcoholism and to provide educational material such as visual aids, educational bulletins, etc., in the conduct of the educational program of such committee. S. 51, to amend the law relating to a definition of the practice of optometry, would include within such definition the prescription or adaptation of **contact lenses,** visual training and orthoptics. S. 56, to amend the law relating to the duplication of ophthalmic lenses, proposes to make it unlawful for any person other than the registered optometrist to accept or offer to accept for purposes of duplication any **ophthalmic lens** ordinarily used by the human eye for corrective purposes. S. 57 proposes to require any agency of the state, county or municipality to accept the **services of optometrists** registered in the state for the purposes of diagnosing and correcting any and all visual, muscular, neurologic and anatomic "neuralics" of the human eye and their appendages of any persons under the jurisdiction of such agency or governmental unit.

# Coming Medical Meetings

Annual Congress on Medical Education and Licensure, Chicago, Palmer House, Feb. 7-8. Dr. Donald G. Anderson, 535 N. Dearborn St., Chicago 10, Secretary.

National Conference on Rural Health, Chicago, Palmer House, Feb. 4-5. Dr. F. S. Crockett, 535 N. Dearborn St., Chicago 10, Chairman.

Alaska Territorial Medical Association, Juneau, March 3-5. Dr. William P. Blanton, Box 2569, Juneau, Secretary.

American Academy of General Practice, Cincinnati, Netherlands Plaza Hotel, March 7-9. Mr. Mac F. Cahal, 231 W. 47th St., Kansas City, Mo., Executive Secretary.

American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, New York, Hotel Waldorf-Astoria, March 4. Dr. Norman N. Smith, 291 Whitney Ave., New Haven 11, Conn., Secretary.

Central Surgical Association, Cleveland, Hotel Cleveland, February 18-19. Dr. Walter G. Maddock, 250 E. Superior St., Chicago 11, Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, Palmer House, March 1-4. Dr. H. Kenneth Scatliff, 30 N. Michigan Ave., Chicago 2, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, March 14-17. Miss Thelma Webb, 1133 Medical Arts Bldg., Dallas, Executive Secretary.

National Conference on Medical Service, Chicago, Palmer House, February 6. Dr. John S. Bouslog, 1612 Tremont Place, Denver Colo., Secretary.

New Orleans Graduate Medical Assembly, New Orleans, Municipal Auditorium, March 7-10. Dr. W. D. Beacham, 1430 Tulane Ave., New Orleans, Secretary.

# GOVERNMENT SERVICES

## ARMY

### CIVILIAN CONSULTANTS PROGRAM TO BE CONTINUED

The Surgeon General has announced that the Army Medical Department will continue the civilian consultants program during 1949. The program, which consists of sending teams of civilian specialists each month to Army and Navy hospitals in Europe, the Far East and the Panama Canal Zone, has been so successful that it may be retained as a permanent part of the Medical Department's operations. The consultants are chosen through the efforts of the Society of Medical Consultants of World War II, subject to approval by the Surgeon General. Each consultant must have outstanding abilities as a teacher, be certified by the specialty board in his field and preferably have had military service as medical officer. Three teams of consultants will leave the United States in January. The following European team will spend most of its time in Germany: Dr. William J. Stewart, associate professor of orthopedic surgery, University of Missouri Medical School, Columbia, and Dr. J. Gardner Hopkins, professor of dermatology, College of Physicians and Surgeons, New York.

The team going to the Far East Command will spend two days at Tripler General Hospital, Hawaiian Islands. After visiting the hospitals in Japan, the team will divide in order to have at least one member visit each Medical Department installation in the Philippine Islands, Guam, Okinawa and Korea.

In Panama, the team will conduct clinics at Gorgas General Hospital and at other Army and Navy hospitals.

The other teams are composed of the following physicians:

Far East Command: Dr. I. William Nachlas, assistant professor of orthopedic surgery, Baltimore; Dr. Irving Rush, associate professor of otorhinology, Temple University Medical School, Philadelphia, and Dr. Frederick W. Fitz, assistant professor of medicine, Northwestern University School of Medicine, Chicago.

Canal Zone: Dr. Donald A. Miller, practice of surgery, Warren, Ohio; Dr. Derrick Vail, professor of ophthalmology, Northwestern University School of Medicine, Chicago, and Dr. Harry Most, director, postgraduate course in tropical medicine, New York University–Bellevue Medical Center, New York.

### THE ARMY'S EDUCATIONAL PROGRAM

This program operates under the policy guidance of a committee of eleven civilian educators and two representatives from each of the educational divisions of the three military services. The Army's education program centers in the United States Armed Forces Institute (USAFI), which is located in Madison, Wis. The Institute provides the services with correspondence courses, self study courses, group study materials, subject tests, end of course tests, G. E. D. tests, lesson service and guidance. It also provides the serviceman's home town school with detailed records of his accomplishments and recommends the credit to be allowed. This program is currently recognized in forty-six states and the District of Columbia. The armed forces do not award credits, diplomas or degrees.

Brigadier General C. T. Lanham, Assistant to the Chief of Staff, in an address before the National Council for Social Studies in Chicago November 25, said that more than 50,000 men are now regularly attending these classes which are conducted on off-duty hours by part time instructors from neighboring educational institutions. The overseas educational centers are staffed by full time instructors from the United States, and the educational programs run the full spectrum from literacy training through graduate study.

In maintaining this program after the war, General Lanham said, "Thousands of men who had enlisted in the Army to escape from school have been encouraged to resume their studies and have gone on to win their high school diplomas and begin college-level work. These are matters of great moment to the Army and of great significance to our country. It would be unfortunate, indeed, if this program were ever abandoned, for, in point of fact, dollar for dollar our educational program provides our country with one of the most profitable investments it can make in its Armed Forces. It provides us with an alert soldiery; it pays rich dividends in terms of prestige for the man in uniform; it is one of the primary inducements in attracting high quality volunteers; and, it represents a permanent social gain to the Republic. The doors of the Army are open and a clean, invigorating wind is blowing away the cobwebs of a narrow and fruitless traditionalism. The good start that has been made cannot be continued without the interest, understanding and support of the American people."

### ADDITIONAL CONSULTANTS TO MEDICAL DEPARTMENT

The following civilian physicians had been added to the consultant list of the Army Medical Department as of November 1, 1948:

| Name and Residence | Hospital | Specialty |
|---|---|---|
| Dorothy Goetze<br>Hot Springs, Ark. | Army-Navy General Hospital | Dermatology and syphilology |
| Carroll F. Shukers<br>Little Rock, Ark. | Army-Navy General Hospital | Pathology |
| Herbert Davenport Jr.<br>Houston, Texas | Brooke Army Medical Center | Pathology |
| Robert K. Brown<br>Denver | Fitzsimmons General Hospital | Surgery |
| Emil Jobb<br>Seattle | Madigan General Hospital | Gastroenterology |
| Buford L. O'Neal<br>Atlanta, Ga. | Oliver General Hospital | Otolaryngology |
| J. Warren White<br>Norfolk, Va. | Oliver General Hospital | Surgery |
| Laurence M. Wiig<br>Honolulu, Hawaii | Tripler General Hospital | Surgery |
| Harry H. Shapiro<br>Boston | Army Medical Center | Anatomy |
| Walter R. Graham<br>Columbia, S. C. | Station Hospital, Fort Jackson, S. C. | Otolaryngology |
| Charles J. Lemmon Jr.<br>Columbia, S. C. | Station Hospital, Fort Jackson, S. C. | Surgery |
| Harvey M. Richey<br>Waco, Texas | Station Hospital, Camp Hood, Texas | Surgery |
| Stephen L. Johnson<br>Evansville, Ind. | Station Hospital, Camp Breckinridge, Ky. | Internal medicine |
| Fred M. Anderson<br>Reno, Nev. | Sierra Ordnance Depot, Herlong, Calif. | Surgery |
| Sol Z. Draznin<br>Cheyenne, Wyo. | Air Force Hospital, Fort Francis E. Warren, Wyo. | Radiology |
| Lloyd Brown<br>Bangor, Maine | Air Force Hospital, Dow Air Force Base, Maine | Surgery |
| Philip J. Kunderman<br>New Brunswick, N. J. | I Army Area | Surgery |
| John R. McCain<br>Atlanta, Ga. | III Army Area | Obstetrics and gynecology |
| Jules M. Key<br>San Francisco | VI Army Area | Dermatology and syphilology |
| Arturo L. Carrion<br>San Juan, P. R. | Medical Consultants Division | Dermatology |
| J. Gardner Hopkins<br>New York | Medical Consultants Division | Dermatology and syphilology |
| Henry M. Winans<br>Dallas, Texas | Medical Consultants Division | Internal medicine |
| J. Steward Rodman<br>Philadelphia | Education and Training Division | Surgery |
| Stanhope Bayne-Jones<br>New York | Historical Division, Army Medical Library | History of medical department in World War II<br>Preventive medicine |

### CERTIFIED BY BOARDS

The following medical corps officers have recently been certified by American Boards of their medical specialties: Colonels Samuel L. Cooke, otolaryngology; Frank Y. Leaver, diagnostic roentgenology, roentgen therapy and radium therapy; Henry S. Murphey, otolaryngology, and Paul O. Wells, radiology; Lieutenant Colonels Lester O. Crago, internal medicine; Robert J. Hoagland, internal medicine, and Byron E. Pollock, internal medicine, and Major Alfred A. Hellams, psychiatry.

# NAVY

## GRADUATE MEDICAL TRAINING PROGRAM

The following lieutenants (jg) in the Regular Navy Medical Corps have been nominated for their first duty to courses of instruction under the Navy's Medical Graduate Training Program: Edward F. Burkhart of Harlan, Ky., to continue as a resident in dermatology and syphilology at St. Mary's Group of Hospitals of St. Louis University; John B. Caire of New Orleans to a residency in obstetrics and gynecology at the Naval Hospital, Long Beach, Calif.; William J. Champion of Philadelphia to a residency in general surgery at the Naval Hospital, Naval Medical Center, Bethesda, Md.; Winfield D. Edgerton of Poplar Bluff, Mo., to a residency in obstetrics and gynecology at the Naval Hospital, Chelsea, Mass.; Samuel M. Fox III of Germantown, Pa., to continue instruction in a fellowship in internal medicine with emphasis on gastroenterology at the Hospital of the University of Pennsylvania, Philadelphia; Kenneth A. Parmelee of Stratford, Conn., to continue instruction in a residency in radiology at Bridgeport Hospital, Bridgeport, Conn.; Maxwell G. Potter of Syracuse, N. Y., to continue instruction in a residency in psychiatry at Philadelphia General Hospital; Anthony P Prezyna of Lackawanna, N. Y., to a residency in pathology at the Naval Hospital, Naval Medical Center, Bethesda, Md.; James H. Stewart of New Orleans to continue instruction as resident in pathology at Touro Infirmary, New Orleans, and Sam D. Waldrop of Tuscaloosa, Ala., to a residency in general surgery at the Naval Hospital, Naval Medical Center, Bethesda, Md.

## POSTGRADUATE INSTRUCTION

The following Naval medical officers have been nominated for postgraduate instruction as indicated: Comdr. Edward J. Jaruszewski, M.C., to a fellowship in internal medicine at Western Reserve University, Cleveland; Lieut. Comdr. Charles N. Scott, M.C.R., of Smithfield, W. Va., to instruction at the School of Aviation Medicine and Research, Pensacola, Fla.; Lieut. George C. Calderwood, M.C., of Roxbury, Mass., to a residency in obstetrics and gynecology at the Naval Hospital, Chelsea, Mass.; Lieutenants (jg) Maurice N. Johnson, M.C.R., of Minneapolis, to instruction at the School of Aviation Medicine and Research, Pensacola, Fla.; Myron E. Samuelson, M.C.R., of Genoa, Neb., to a residency in surgery at the Naval Hospital, San Diego, Calif., and Henry Santina, M.C.R., of San Francisco to instruction at the School of Aviation Medicine and Research, Pensacola, Fla.

## FIRST ACTIVE DUTY AS INTERNS

The following lieutenants (jg) in the medical corps reserve have reported for their first active duty as interns in the civilian institutions indicated, and on completion of their internships will serve in naval medical facilities:

| Name | Residence | Institution |
|---|---|---|
| Alexander, Merrill J. | Urbana, Ill. | Cook County Hospital, Chicago |
| Annesley, William H., Jr. | Philadelphia | Lankenau Hospital, Philadelphia |
| Behrhorst, Carroll D. H. | Brazilton, Kan. | St Louis City Hospital |
| Bowden, Ben W. | Munday, Texas | Shreveport Charity Hospital, Shreveport, La. |
| Cotthoff, John E. | Portland, Ore. | John Gaston Hospital, Memphis, Tenn. |
| Critz, George T. | Cincinnati | Christ Hospital, Cincinnati |
| Evans, James H., Jr. | New Holland, Pa. | Lancaster General Hospital, Lancaster, Pa. |
| Farrell, Gerald J., Jr. | Corona, N. Y. | Bridgeport Hospital, Bridgeport, Conn. |
| Foerster, Harry R., Jr. | Hartland, Wis. | Germantown Dispensary and Hospital, Philadelphia |
| Grice, Paul F. | Mulberry, Ind. | Hurley Hospital, Flint, Mich. |
| Guill, Russell E. | Kerrville, Texas | Santa Rosa Hospital, San Antonio, Texas |
| Hill, Billy J. | St. Paul, Neb. | King County Hospital, Seattle |
| Hoffman, Gilvert M. | Allentown, Pa. | Allentown General Hospital |
| Horn, Paul L., Jr. | Winston-Salem, N. C. | Charity Hospital of Louisiana, New Orleans |
| Keeler, Clifford E. | Jackson, Mich. | San Diego County General Hospital, San Diego, Calif. |
| Kircher, Robert W. | Norwalk, Conn. | Bellevue Hospital, New York |
| Krouse, Theodore B. | Philadelphia | Philadelphia General Hospital |
| Maddox, Stephen G., Jr. | Fort Worth, Texas | Baylor University Hospital, Dallas, Texas |
| Monahan, Thomas J., Jr. | Roslindale, Mass. | Boston City Hospital |
| Montgomery, Donald M. | Bexley, Ohio | Deaconess Hospital, Cincinnati |
| Nelson, Robert A. | Tulsa, Okla. | Ancker Hospital, St. Paul |
| O'Malley, Keven B. | Cynwyd, Pa. | Huron Road Hospital, East Cleveland, Ohio |
| Parsons, David W. | Louisville, Ky. | Presbyterian Hospital, Chicago |
| Philp, David R. | Mankato, Minn. | Northwestern Hospital, Minneapolis |
| Schmitthenner, Jerry E. | Chambersburg, Pa. | Lankenau Hospital, Philadelphia |
| Scott, Alfred W., Jr. | Athens, Ga. | Philadelphia General Hospital |
| Spence, David L. | Pittsburgh | Germantown Dispensary and Hospital, Philadelphia |
| Swartz, Curtis H. | Akron, Pa. | Lancaster General Hospital, Lancaster, Pa. |
| Wilson, Theodore W. | Marshall, Minn. | Minneapolis General Hospital |
| Zucca, John L., Jr. | San Francisco | Mary's Help Hospital, San Francisco |

# PUBLIC HEALTH SERVICE

## INFLUENZA EPIDEMIC IN EUROPE

Surgeon General Scheele states that the present epidemic of influenza in Europe is mild, causing few deaths, and that so far there is no indication that it may spread to the United States. The Public Health Service and the medical departments of the Army, Navy and Air Force are in constant touch with the situation through the Influenza Information Center (see The Journal, Jan. 8, page 108) at the National Institutes of Health. Influenza authorities in Europe cabled as of January 13 that the European epidemic had spread from Italy to Austria, France, Belgium and the Netherlands, with another focus in Czechoslovakia. The Director of the World Influenza Center in London, Dr. C. H. Andrewes, reported on that date that, while influenza virus B had been isolated in Italy, there was no certainty that this virus was the chief culprit, and that it had not yet been determined whether the viruses causing the outbreaks in Europe are similar to those in existing vaccine. Dr. Pierre Lepine of the Pasteur Institute in Paris cabled that one half of the influenza cases tested in Paris were caused by a type A virus, the other half by an unrelated virus strain or strains not yet identified. The influenza vaccine now commercially available includes three strains of virus, a type A virus known as PR-8, the Lee virus, which is a type B virus, and the FM-1 virus, which is an A virus.

The Influenza Information Center at Bethesda, Md., has requested all state and local health offices and local communicable disease control offices to report promptly every local outbreak of influenza in this country so that the Influenza Information Center may alert diagnostic laboratories in the region affected, asking them to make serologic tests for the presence of antibody against the influenza virus. Certain laboratories would also be asked to assign investigators to the affected community. Fifty-six diagnostic laboratories are participating in this part of the program.

## STUDY OF ENVIRONMENT IN CANCER

A research project to study the role of environment in cancer will be set up at Georgetown University Medical School, Washington, D. C., with funds provided by the National Cancer Institute. The financial aid to Georgetown will be for converting two large classrooms at the medical school into modern laboratory units. Facilities of the medical school will be used, but the work will be carried out by scientists of the National Cancer Institute. Dr. Wilhelm Hueper of the Institute will be in charge. Among environmental factors to be studied are the substances used by modern industry. State health officials will also be asked to make occupational cancer studies to aid in the project.

# Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

## COLORADO

**Lectures in Psychosomatic Medicine.**—A lectureship on psychosomatic medicine sponsored by the University of Colorado School of Medicine, Denver, is to be given at the university February 7-11. The guest lecturer is Dr. Douglas D. Bond, professor of psychiatry, Western Reserve University School of Medicine, Cleveland. All physicians licensed to practice medicine and who are members of county medical societies are invited to attend. A detailed program may be obtained from Dr. Franklin G. Ebaugh, Department of Psychiatry, University of Colorado School of Medicine, Denver.

## CONNECTICUT

**First Typhoid Case in Seven Years.**—The first diagnosed case of typhoid in New Haven in seven years occurred November 5 and resulted fatally November 16. This was the first recorded death from typhoid in the state for 1948. An investigation proved that the victim had eaten clams which had been dug from a posted area along the shore af New Haven harbor. None of the other guests at the dinner party where the clams were served were affected.

**Yale Alumni in Public Health.**—Yale alumni now active in public health work are planning to establish an organization to be known as Yale Alumni in Public Health, which will assist in formulating teaching plans, facilitate the exchange of ideas and promote improved professional standards. At the organization meeting held during the recent convention of the American Public Health Association in Boston, more than one hundred and fifty public health graduates, faculty and former faculty members heard the proposed constitution for the new group.

**Change in Board Membership.**—Dr. Thomas P. Murdock, chairman of the governing council of the Connecticut State Medical Society, has resigned as a member of the Connecticut Medical Examining Board and Dr. John H. Bumstead, New Haven, a graduate of Johns Hopkins University School of Medicine, Baltimore, 1923, has been appointed to fill the vacancy. Dr. Murdock had been a member of the Examining Board continuously for more than seventeen years, and served as its president since January 1948. Dr. Bumstead's appointment to the board was effective January 1 for a term of five years. He has practiced medicine in Connecticut since 1930.

## FLORIDA

**Personal.**—Roland B. Mitchell, Ph.D., has resigned as director of laboratories for the Florida State Board of Health to become head of the department of bacteriology at the School of Aviation Medicine, Randolph Field, Texas.

**State Health Department Report.**—Dr. Wilson T. Sowder, Florida state health officer, in making his yearly report listed the following advances for 1948. Approximately 21 per cent or 386,504 of the adult population were given roentgen examinations during the mass survey conducted in thirty-four counties. It is planned to survey 20 per cent of the population during 1949. Since a statewide stream pollution survey showed that a vast portion of streams and lakes were becoming dumping grounds for Florida wastes, plans were made for sewage treatment plants at the Universities of Miami and of Florida, Silver Springs, Milton, Lakewood subdivision and Jacksonville. Construction is under way on plants in three other cities, another three are ready to construct and several are being surveyed.

## GEORGIA

**Course in Allergy.**—The American Academy of Allergy in cooperation with the University of Georgia School of Medicine in Augusta will sponsor an orientation course in allergy from March 7 through March 11 at the university. This course is under the direction of Dr. Leo H. Criep, Pittsburgh, assisted by other fellows of the American Academy of Allergy and a distinguished faculty. Enrolment is open to any one interested, and the fee is $50. Applications should be addressed to the Executive Office of the Academy, 208 East Wisconsin Avenue, Milwaukee 2.

**Special Society Meeting.**—The annual meeting of the Georgia Society of Ophthalmology and Otolaryngology will be held in the General Oglethorpe Hotel in Savannah on March 4-5. The program is as follows:

Paul A. Chandler, Boston, Glaucoma Management.
Jack S. Guyton, Baltimore, Cataract Management.
Oscar C. E. Hansen-Pruss, Durham, N. C., Allergy of the Upper Respiratory Tract.
Marvin F. Jones, New York, Management of Ear Problems in Children and an Otological Survey.
Ralph O. Rychener, Memphis, External Eye Diseases and Dacrocystitis.
Fletcher D. Woodward, Charlottesville, Va., Problems in Laryngology.

## ILLINOIS

**Personal.**—Dr. Frank L. Rector of Evanston has been awarded the Navy Cross Medal for his service as medical officer with an infantry battalion in the Saipan and the Tinian engagements in the recent war. The award was made December 24 at the Swan Island Naval Base, Portland, Ore. The previously awarded Silver Star Medal (THE JOURNAL, May 12, 1945, page 136) was recalled by the Navy and in its place the Navy Cross Medal was awarded.

**Extend X-Ray Survey.**—The Tuberculosis Institute of Chicago and Cook County and the Municipal Tuberculosis Sanatorium are planning to give roentgen examinations to 350,000 persons in Chicago and Cook County in 1949. The two groups examined over 300,000 in the Chicago area last year. The program has already begun with surveys being made in three large Chicago area industries. Workers were allowed time off from their jobs to be examined in the mobile units.

### Chicago

**The Bacon Lecture.**—The Charles Sumner Bacon Lecture will be delivered at the University of Illinois February 23 at 1 p. m. by Dr. Edwin C. Hamblen, Durham, N. C., on "Postpubescent Amenorrhea."

**Heart Association Meeting.**—The Chicago Heart Association Clinical Section will hold a joint meeting with Presbyterian Hospital and the University of Illinois February 18 in Room 221 of the university's medical school from 10 a. m. to 12:15 p. m. Physicians are welcome.

**Diabetes Sixth Cause of Death.**—Diabetes ranked as the sixth cause of death in Chicago up to Dec. 6, 1948, according to the Chicago Health Department. On that date 1,132 deaths due to diabetes had been reported, a slight decrease from the 1,145 total for a corresponding period in 1947. The diabetes death rate for the year was computed as 33.3 deaths per 100,000 population as against 33.7 per 100,000 population for the same period in 1947.

**Annual Cancer Symposium.**—The second annual Cancer Symposium for Chicago Doctors will be held January 26 through April 8 from 9 a. m. to 4:30 p. m., sponsored by the Chicago Medical Society, the faculties and staffs of participating medical schools and hospitals and the Illinois Division of the American Cancer Society. The first meeting was held at Northwestern University Medical School January 26. The second meeting will be held February 16 at Mercy Hospital with Loyola University Medical School participating. On March 16 meetings will be held in the amphitheater, Sarah Morris Children's Hospital of Michael Reese Hospital. The fourth series of lectures will be given April 6 at the University of Illinois College of Medicine, and the last of the symposium lectures will be delivered in the morning of April 8 at the University of Chicago Medical School.

**Fifth Annual Clinical Conference.**—The fifth annual Clinical Conference of the Chicago Medical Society will be held at the Palmer House March 1-4. The fee is $5. The program is as follows:

John W. Harris, Madison, Wis., Bleeding in the Last Trimester of Pregnancy.
Robert L. Jackson, Iowa City, Treatment of Rheumatic Fever and Prevention of Recurrences.
Walter P. Blount, Milwaukee, Fractures in Children Are Different.
Charles B. Huggins, Chicago, Diagnosis of Testicular Tumors.
Wendell G. Scott, St. Louis, Diagnosis of Congenital Heart Disease by Angiography and Aortography.
William L. Benedict, Rochester, Minn., Ocular Manifestations in Systemic Diseases.
Roscoe L. Sensenich, South Bend, Ind., Dangers to the Public in Socialized Medicine.
Walter C. Alvarez, Rochester, Minn., Puzzling Functional Syndromes.
Paul C. Bucy, Chicago, Fractures of the Skull.
LeRoy H. Sloan, Chicago, Causes of Low Back Pain in the Older Patient.
Bernard J. Alpers, Philadelphia, The Sciatica Problem.
Ovid Meyer, Madison, Wis., Recent Developments in Anticoagulant Therapy.
Marion A. Blankenhorn, Cincinnati, Treatment of Pneumococcal Pneumonia with Single Daily Dose of Penicillin.
Charles T. Stone, Galveston, Tex., Infectious Hepatitis.
George M. Lewis, New York, Recent Advances in Dermatologic Therapy.
Everett I. Evans, Richmond, Va., Fluid and Electrolyte Requirements in Surgery.

Willis J. Potts, Chicago, Diagnosis and Surgical Treatment of Patent Ductus Arteriosus.
Albert C. Furstenberg, Ann Arbor, Mich., Antibiotics in the Treatment of Diseases of the Ears, Nose and Throat.
Thomas E. Jones, Cleveland, Carcinoma of the Colon.
Henry W. Woltman, Rochester, Minn., Influence of Arteriosclerosis on the Central Nervous System.
Leo G. Rigler, Minneapolis, Minn., Roentgen Diagnosis of Carcinoma of the Lung.
John L. Emmett, Rochester, Minn., Surgical Treatment of Urinary Retention.
William D. Stroud, Philadelphia, Coronary Thrombosis.
William A. Altemeier, Cincinnati, Chemotherapy in Surgery.
Archibald D. Campbell, Montreal, Canada, Damaged Birth Canal and Its Repair.
James L. Poppen, Boston, Intracranial Aneurysms.
Louis R. Limarzi, Chicago, Thrombocytopenic Purpura.
Arthur A. Schaefer, Milwaukee, Surgical Problems in Pediatrics.
Ray Farquharson, Toronto, Canada, Diagnosis and Treatment of Common Anemias.
Barney Brooks, Nashville, Tenn., Surgery in the Aged.
Harry M. Weber, Rochester, Minn., Diagnosis of Early Intestinal Cancer.
Robert W. Keeton, Chicago, Objectives in the Treatment of Diabetes Mellitus.
James J. Callahan, Chicago, Fractures of the Hip.
Edmund F. Foley, Chicago, Diagnosis and Treatment of Early Pulmonary Tuberculosis.

## IOWA

**Business Men Honor Physician.**—The Alta Chamber of Commerce feted Dr. John W. Morrison, who had practiced medicine in that city since 1904, at an anniversary party in December attended by several hundred friends. A watch was presented to Dr. Morrison and a gift of over $2,500, which will be used to purchase equipment for the new Alta Memorial Hospital, which Dr. Morrison has been promoting.

**Information Wanted on Early Schools.**—Any person having first hand information regarding some of the early schools of medicine in Iowa is asked to communicate with Dr. John T. McClintock, Room 259, Medical Building, Iowa City, for the purpose of completing information on the history of medical education in the state. Information is sought on the following schools particularly: King Eclectic Medical College of Des Moines for the period 1880 to 1886; Iowa Eclectic Medical College about the same time; Council Bluffs Medical School, 1893 to 1895; a proposed school at Colfax in 1886, and the proposed W. F. Peck School at Davenport, 1896.

## MAINE

**Mt. Desert Island Laboratory.**—The Mt. Desert Island Biological Laboratory, Salisbury Cove, Maine, is offering its facilities for research in the study of biology for the season of 1949. The recent fire caused no damage to the laboratory. There is also a newly equipped laboratory for the study of problems in tissue growth under the supervision of Philip R. White, Ph.D., to whom individuals should address their inquiries at the Institute for Cancer Research, Girard and Corinthian Avenues, Philadelphia 30. In memory of Ulric Dahlgren, long one of the guiding spirits of the laboratory, a gift has been received for the establishment of research fellowships. The number and value of the fellowships cannot be stated now, but will be sufficient substantially to defray some of the expenses. Mature investigators will receive first consideration. Inquiries, except those noted, should be addressed to Dr. J. Wendell Burger, director of Trinity College, Hartford 6.

## MARYLAND

**Personal.**—Dr. F. Kenneth Albrecht, Baltimore, has resigned as medical editor of the Williams and Wilkins Company, Baltimore, and has been appointed director of the Division of Tuberculosis Control, Kansas State Board of Health, Topeka, Kan.

**Dr. Pfund Dies.**—August H. Pfund, Ph.D., professor emeritus of physics, Johns Hopkins University, Baltimore, and an authority on physical optics and infra-red rays, died in Baltimore, January 5, aged 69. He was a recipient in 1939 of the Frederic E. Ives medal of the Optical Society of America.

## MICHIGAN

**Dr. Clark Appointed Emeritus Professor.**—Dr. Harry L. Clark, after nearly forty years' association with Wayne University, has been appointed emeritus professor of bacteriology and clinical pathology. He joined the faculty in 1919 and has held the rank of professor of bacteriology and clinical pathology since 1922.

**Case-Finding Survey at County Fairs.**—Mobile chest x-ray units of the Michigan Department of Health, conducting a case finding survey in twenty-seven county fairs last summer and fall discovered 693 cases of suspected active or healed tuberculosis. Among the 42,324 persons given roentgen examinations, 1 suspect case was found for every 61 persons examined.

In 1947 a total of 43,670 persons was examined roentgenologically at twenty-three fairs, revealing 418 cases of suspected tuberculosis, or an average of 1 case for every 104 persons examined. The 1948 fair survey found 1,879 chest abnormalities, but additional follow-up showed that about two thirds of these were due to causes other than tuberculosis.

## MISSOURI

**Personal.**—Dr. J. Earl Smith, St. Louis, has been appointed St. Louis City Health Commissioner to fill the vacancy created by the death of Dr. Joseph F. Bredeck on Oct. 4, 1948. He is a graduate of St. Louis University School of Medicine.

**Annual Barnard Lecture.**—The annual Barnard Lecture is to be given at the St. Louis Medical Society Auditorium in St. Louis, February 1 by Dr. Herbert F. Traut, professor of obstetrics and gynecology at the University of California Medical School, Berkeley–San Francisco. The title of the lecture will be "Cytological Diagnosis of Cancer as It Applies to the Female Genital and Pulmonary Tracts."

## NEW JERSEY

**Joins Foundation Staff.**—Dr. Robert J. Neville of Teaneck, N. J., will join the medical staff of the National Foundation for Infantile Paralysis on February 15. From 1936 to 1942 he was a member of the orthopedic service of the New York Postgraduate Hospital, and also served from 1938 to 1942 as instructor in orthopedic surgery at New York Post-Graduate Medical School, Columbia University. During the succeeding five years Dr. Neville was a staff member of New York Orthopaedic Dispensary and Hospital. He is also a member of the orthopedic staff of Bergen Pines Hospital, Bergen County, Oradell, N. J., which specializes in the treatment of acute and chronic poliomyelitis cases.

## NEW YORK

**Newspaper Articles on Medical Practice.**—As a means of keeping readers informed on Nassau County medicine and establishing a better understanding of medical problems, the Public Relations Committee of the Nassau County Medical Society is sponsoring a series of articles in the local press. These articles appear under the name of the chairman of the Public Relations Committee.

**Postgraduate Instruction.**—The Medical Society of the State of New York in cooperation with the New York State Department of Health has arranged a postgraduate lecture for the Glens Falls Academy of Medicine on March 17 at 8:30 p. m. at the Glens Falls Library. Dr. Bradley L. Coley, New York, will speak on "Diagnosis and Treatment of Bone Tumors." The Schenectady County Medical Society on February 1 at 8:30 p. m., meeting in the Eastern New York Orthopedic Hospital in Schenectady, will hear Dr. Cushman D. Haagensen, New York, speak on "Cancer of the Breast."

### New York City

**Society Elections.**—The Brooklyn Dermatological Society has chosen as officers for 1948 and 1949 Dr. Ernest A. Gauvain, president, and Dr Samuel I. Greenberg, secretary-treasurer. ——At the December meeting of the Brooklyn Urological Society, Dr. Lawrence L. Lavalle was elected president and Dr. Mark Fishberg secretary-treasurer.

**The Largest Postgraduate Enrolment.**—The annual meeting of the Joint Committee of Postgraduate Education of the Long Island College of Medicine and the Medical Society of the County of Kings was held January 4 in Brooklyn. During the last calendar year, sixty-four courses were given and were attended by 1,094 doctors, the largest enrolment ever recorded by the committee since it began its postgraduate courses in 1923.

**Tuberculosis Conference.**—A clinical session on chronic pulmonary diseases has been planned for the Tuberculosis Sanatorium Conference of Metropolitan New York February 9, at 8:15 p. m. at the Cornell University Medical College Amphitheater. Dr. John N. Hayes, New York, will speak on "The Present Status of Pneumothorax," Dr. Robert S. Mitchell, Trudeau, on "The Present Status of Phrenic Nerve Interruption in the Treatment of Pulmonary Tuberculosis" and Dr. Ralph E. Moyer on "The Value of Pneumoperitoneum in the Treatment of Pulmonary Tuberculosis."

**Dr. Kogel Named Commissioner of Hospitals.**—Dr. Marcus D. Kogel, general medical superintendent of the department of hospitals, has been named commissioner of hospitals effective February 1, succeeding Dr. Edward M.

Bernecker, recently resigned. Dr. Kogel is a graduate of the New York Homeopathic Medical College and Flower Hospital, 1927, and served in the Medical Corps of the U. S. Army through 1929 and 1930. He became deputy medical superintendent of Cumberland Hospital, then medical superintendent of the hospital and of the Brooklyn Cancer Institute. He was the first medical superintendent of Queens General Hospital in Jamaica in 1935. He assumed his present position of general medical superintendent in the department of hospitals in October 1946.

**Eight Millions for Postgraduate Education.**—A gift "in excess of $8,000,000" from the Samuel H. Kress Foundation has been made to the New York University-Bellevue Medical Center. Terms of the grant stipulate that it is to be devoted to the development at the center of a program of postgraduate medical education which will be national and worldwide in its scope and which will require a decade to work out on a constructive basis. About $4,000,000 will be made available as capital funds for the construction of postgraduate facilities in the new buildings, and a second $4,000,000 will be earmarked as a support for a program of postgraduate medical teaching by outstanding practicing physicians and surgeons. The gift follows by less than two months the announcement by the university of the formation of a new postgraduate medical school into which has been incorporated the program and properties of the New York Postgraduate Medical School and Hospital (THE JOURNAL, Dec. 11, 1948, p. 1105).

## NORTH CAROLINA

**Typhoid Cases Increase.**—The North Carolina State Board of Health reports that for the first time since 1935 there was an increase in the number of typhoid cases reported in the state, the total for 1948 having been 62 as compared with 48 in 1947. Infantile paralysis cases numbered 2,518 during 1948 as compared with 300 in 1947. Diphtheria cases were at an all time low with 519 during 1948 as compared with 751 during 1947. Previous low was 590 cases reported for 1946.

**Medical and Surgical Symposium.**—The sixth annual Medical and Surgical Symposium of Watts Hospital, Durham, will be held February 16-17 in the Carolina Theater. The program is as follows:

Paul D. White, Boston, The National Heart Institute and the National Advisory Council.
Priscilla White, Boston, Management of the More Difficult Cases of Diabetes Complicating Pregnancy.
Henry T. Ricketts, Chicago, Modern Trends in Diabetes.
William Dameshek, Boston, The Spleen and Hypersplenism.
H. Houston Merritt, New York, Experimental Approach to the Treatment of Convulsive Disorders.
Rudolph A. Bartholomew, Atlanta, Ga., The Implications of Vascular Disease in Pregnancy.
Hugh R. Butt, Rochester, Minn., Evaluation of Current Tests for Liver Function.
Charles L. Short, Boston, Diagnosis of Rheumatoid Arthritis.
Chester M. Jones, Boston, Nutritional Disturbances Associated with Anastomotic Surgery of the Gastro-Intestinal Tract.
Robert E. Gross, Boston, Treatment of Coarctation of the Aorta.

The program Wednesday night will be a panel discussion on cardiovascular disease under the chairmanship of Dr. White, with William B. Porter, Richmond, Va.; Edward S. Orgain, Durham, N. C.; Edwin S. Wood Jr., Charlottesville, Va.; Dr. Gross and Elexious T. Bell, Minneapolis, taking part.

## OHIO

**Toledo Bureaus Merged.**—Toledo has established a city Bureau of Preventative Medicine, merging communicable disease work with venereal disease control. The move was necessary from the standpoint of economy and the fact that the state of Ohio, after the first of the year, planned to abandon its venereal disease control work in Toledo. Dr. Cornelius J. A. Paule of the state department was to be named head of the combined bureau.

**Cerebral Palsy Center.**—A cerebral palsy center is to be opened next fall in the Speech Building now under construction at Bowling Green (Ohio) State University. It is to be a cooperative project of the university and the Ohio Society for Crippled Children. The university will provide supervisory personnel, quarters, maintenance and use of testing and recording equipment now on hand. The Ohio society will provide funds for a speech, physical and occupational therapy and such special equipment as may be needed. It has allocated $15,000 a year for a three year period from its James T. Pardee Fund for special service projects, and will also provide medical and other professional consultants as needed and special postgraduate training in cerebral palsy for therapists who will be on the center's staff. Dr. Winthrop M. Phelps, Baltimore, Md., will become consultant to the center through the Ohio society.

## TEXAS

**Society News.**—The Waco Pediatrics Society was organized in September, with Dr. Margil C. Carlisle as president and Dr. F. William Hoehn as secretary. The ultimate aim of the organization is reported to be the construction of a children's hospital in Waco.

**University Appointment.**—Dr. Marshall H. Brucer, recently appointed director of the Biology Division of the Oak Ridge (Tenn.) Cancer Research Laboratory under the auspices of the Atomic Energy Commission, has been appointed visiting professor of physiology at the University of Texas Medical Branch, Galveston. This appointment has been made in order to enable Dr. Brucer to supervise the completion of research undertaken at the Medical Branch before his appointment to the Oak Ridge Laboratories.

**Free Cerebral Palsy Treatment.**—The Dallas Society for Crippled Children is operating a cerebral palsy treatment center for children at no cost to their families. The medical staff is composed of twelve doctors whose service is free of charge. The doctors also give courses for parents and a series of fifteen lectures which explain the cause of cerebral palsy and treatment. Operating funds come from the sale of Easter Seals, the Dallas Junior League and miscellaneous donations. Three nurses' training schools in Dallas, the Southwestern Medical College and Southern Methodist University Medical Department send their students to the center to work.

## WASHINGTON

**Bainbridge Island Honors Physician.**—More than 400 residents of Bainbridge Island turned out recently at Winslow to pay tribute to Dr. Frank L. Shepard. The Bainbridge Chamber of Commerce sponsored the affair in tribute to Dr. Shepard's service to island residents since his arrival in 1911. More than 75 friends and representatives of island groups met at dinner in the town hall. Later the party moved to the Bainbridge High School, where a larger group attended the ceremonies.

## WISCONSIN

**Personals.**—The degree Doctor Honoris Causa was awarded by the National University of San Marcos in Lima, Peru, to Dr. Arthur L. Tatum, professor of pharmacology at the University of Wisconsin Medical School, last September. While in Peru, Dr. Tatum lectured at the medical school.——Dr. M. G. Peterman, Milwaukee, has been elected state chairman of the American Academy of Pediatrics.

**Organize Public Health Association.**—Formal organization of the Wisconsin Association for Public Health took place December 21 in Madison. Among the officers elected were Dr. William D. Stovall, State Board of Health, Madison, president, and Bruce Dimmit, Green Bay sanitary engineer, secretary-treasurer. The association will differ from the Wisconsin Public Health Council in that the dominant membership will be professional workers in the field rather than lay members.

**The Carey Lecture.**—Dr. Helen B. Taussig, Baltimore, will be the guest speaker at the second annual Eben J. Carey Memorial lectureship February 9 at 4 p. m. in the Marquette University School of Medicine Auditorium in Milwaukee. After the lecture a dinner will be held in Dr. Taussig's honor. The lecture is sponsored by the Alpha Lambda chapter of Phi Delta Epsilon fraternity in honor of the late dean of Marquette University School of Medicine.

## WYOMING

**Tuberculosis Registry.**—The Central Tuberculosis Registry of the Wyoming State Department of Public Health began operating January 1. The registry will aid in getting information back to physicians in the state and serve as a means of keeping accurate statistics on tuberculosis. Further information may be obtained from the Tuberculosis Control Division, Cheyenne.

## ALASKA

**Eskimos Given BCG Vaccine.**—Vaccinations for the control of tuberculosis have been completed at Point Barrow, Alaska, where 600 Eskimos was examined and 250 received antituberculosis vaccine from a physician attached to the Bureau of Indian Affairs, according to the *New York Times.* Similar work has been conducted in Southeastern Alaska, Sitka and Wrangell.

## HAWAII

**Panel on Pneumatology.**—The Society for the Prevention of Asphyxial Death, Inc., conducted a panel on pneumatology at the Mabel Smyth Auditorium, Honolulu, T. H., January 11. Cooperating agencies were the medical corps of the U. S. Army and Navy, and the U. S. Public Health Service. Dr. Maurice L. Brodsky, U. S. Public Health Service, Honolulu, spoke on "The Asphyxial Hazard in Tuberculosis and in Other Respiratory and Circulatory Conditions," and Commander Walter Welham of the Pacific Fleet spoke on "Submersion in the Navy During World War II." The second part of the program was devoted to resuscitation, with Colonel Harold H. Twitchell of the Tripler General Hospital, Honolulu, and Paluel J. Flagg as the speakers.

## GENERAL

**Change Date of Surgical Congress.**—The dates for the Southeastern Surgical Congress have been changed from January 24-27 to May 23-26, according to the secretary, Dr. Benjamin T. Beasley.

**Create Board of Thoracic Surgery.**—The Board of Thoracic Surgery was established as an affiliate of the American Board of Surgery, Inc., on Oct. 2, 1948 at a meeting in Detroit. Information regarding the requirements of this board may be obtained by writing William M. Tuttle, M.D., secretary-treasurer, 1151 Taylor Avenue, Detroit 2.

**Panamerican Medico-Social Congress.**—The Panamerican Medico-Social Congress, postponed from December 3-10, will be held in Lima, Peru, February 20-26. For the program agenda see The Journal, Oct. 23, 1948, page 603. Those planning to attend may obtain information from Gilberto Morey Sotomayor, Secretary, Second Panamerican Medico-Social Congress, Asociacion Medica Peruana Villalta 218, Apartado 926, Lima, Peru.

**Society Election.**—The Society of American Bacteriologists selected the following officers for 1949: Dr. William McD. Hammon, San Francisco, president, and Dr. John E. Blair, New York, secretary-treasurer. The annual meeting of the society will be held May 16-20 in Cincinnati.——The American Academy of Dermatology and Syphilology, meeting in Chicago in December, chose Dr. Francis E. Senear, Chicago, as president and Dr. Louis A. Brunsting, Rochester, Minn., as secretary.

**Health Check-Ups in Industry.**—A survey recently released by the National Industrial Conference Board, shows that 16.5 per cent of the 333 establishments surveyed require that executives undergo periodic physical examination. Medical directors were found in more than 50 per cent and assistant medical directors in 13.5 per cent of the companies. Dentists are found in 41 organizations, x-ray technicians in 50 companies, medical laboratory technicians in 46 and physical therapists in 22. Eighty-three companies employ first-aid attendants and 20, practical nurses.

**Color Film on Cancer.**—A color motion picture, "Cancer: The Problem of Early Diagnosis," designed to educate the general practitioner in the treatment of cancer, has been produced jointly by the American Cancer Society and the National Cancer Institute. Five other half hour films, each dealing with a specific site of cancer, will be offered during the next two years to doctors throughout the country. Actual operations are followed by cameras placed directly over the surgeons' hands: Family physicians are shown examining patients in their own offices; charts indicate the course of metastasis of unchecked cancer. In regard to availability of the film, see Motion Picture Review in this issue, page 328.

**Awards in Endocrinology.**—The Association for the Study of Internal Secretions will give three awards for meritorious work in endocrinology at its annual meeting June 3-4 in Atlantic City, N. J. A committee of five members will choose recipients nominated by members of the association. All nominations, accompanied by a statement of the importance of the nominee's contribution to endocrinology and a bibliography of his most important papers, should be sent to the secretary, Dr. Henry H. Turner, 1200 North Walker Street, Oklahoma City 3 not later than March 15. The awards are the E. R. Squibb and Sons Award of $1,000, the Ciba Award of $1,200 and the Ayerst, McKenna and Harrison Fellowship.

**Meeting on Blindness.**—The National Society for the Prevention of Blindness will hold a three day national conference March 16-18 at the Hotel New Yorker in New York. The theme of the meeting will be "The Battle Against Blindness—the Next 40 Years," and the following subjects will be discussed: eye problems in middle life, the eyes of children and young adults, vision in industry, medical advances in sight conservation and glaucoma—a community problem. Persons directly or indirectly concerned with eye health and safety will find this conference of interest. Details may be obtained by writing to the society at 1790 Broadway, New York 19.

**Communicable Diseases.**—The U. S. Public Health Service reports that, for the week ending January 1, 1 case of smallpox was reported in each of the following states: North Dakota, South Dakota, Nebraska and Montana; 1 case of anthrax was reported in California; 1 case of Rocky Mountain spotted fever in Georgia, and 46 cases of tularemia in the country as a whole. The cumulative figures for fifty-two weeks ending January 1 indicate that the incidence of poliomyelitis during the recent epidemic was higher in South Dakota than in any other state, followed in order by North Carolina, Nebraska, California, Minnesota and Iowa. The number of cases of influenza reported by state health officers for the week ending January 1 was not unusually high in any part of the country. The reported incidence of scarlet fever remained low, although the total number of cases for the week (1,935) was higher than the number for the corresponding week of the previous year (1,668); however, it was below the median figure for the previous five years (2,211).

**National Cancer Conference.**—The first annual National Cancer Conference, sponsored jointly by the American Cancer Society and the National Cancer Institute of the U. S. Public Health Service, will be held at the Hotel Peabody, Memphis, Tenn., February 25-27. The program will open with a discussion of fundamental biologic problems of growth with Clarence C. Little, Sc.D., Bar Harbor, Me., acting as moderator. The program up to the Friday afternoon session is made up of round table discussions of cancer according to site, type and frequency, and administration of grants, professional education technics and cancer services and facilities. At the general meeting Friday afternoon summaries of panel discussions will be presented by the moderators of each panel, and Dr. Morris K. Barrett, National Advisory Cancer Council, Bethesda, Md., will give a summary of the Proceedings of the National Gastric Conference in San Francisco, December 13-14. All sessions will be open to physicians who may desire to audit the proceedings.

**WHO to Administer International Prizes.**—The assets of the Léon Bernard Foundation, which periodically awards an international prize for practical results obtained in social medicine, have been turned over to the World Health Organization to be administered by the director-general. Selection of the recipient of the prize will be among the duties of the Expert Committee on Social Medicine, which is to be appointed by the Health Assembly. The International Malariology Prize awarded by the Darling Foundation to the author of an original study on the pathology or prophylaxis of malaria will henceforth be administered by the World Health Organization. The Expert Committee on Malaria will recommend a candidate for the medal and prize. The Léon Bernard Foundation was established in 1937 by international subscription to perpetuate the memory of Professor Léon Bernard, a member of the Health Committee of the League of Nations. The Darling Foundation was created by prize funds in 1945 in memory of Dr. S. T. Darling, who was accidentally killed during a study mission of the League of Nations Malaria Commission.

**Yale Summer School of Alcohol Studies.**—The summer school of Alcohol Studies, conducted annually since 1943 by the Laboratory of Applied Physiology of Yale University, will hold two separate but equivalent sessions this year. A Western session will be held from June 6-29 on the campus of Trinity University at San Antonio, Texas, and an Eastern session will be held at Yale University in New Haven, Conn., July 8 to August 5. The curriculum, consisting of lectures, seminars and demonstrations, deals with the medical, psychologic, physiologic, psychiatric, sociologic, economic, legal, religious, educational and therapeutic aspects of alcohol problems. During the second half of each session the curriculum is divided into two parts for the professional groups concerned particularly with the educational or the therapeutic aspects of alcoholism. The summer school is under the directorship of Elvin M. Jellinek, Sc.D. The lecturers, mainly from the faculties of Yale University and Texas Christian University, Fort Worth, include authorities who have done original research in their fields as well as representatives of other national institutions of education, research, treatment or rehabilitation. Applications for admission to the Western session will be received up to April 1 and for the Eastern session up to April 15. Application blanks for either session may be obtained by writing to the executive Secretary, Summer School of Alcohol Studies, Yale University, New Haven, Conn.

**Review of Soviet Medicine Suspends Publication.**—The *American Review of Soviet Medicine*, which has served during the last five years to link medical workers in Soviet Russia with others in the world, has suspended publication. The announcement was made in an editorial by Dr. Henry E. Sigerist, consultant editor of the *Review*. Dr. Sigerist said, "For five years we have endeavored to establish an exchange of medical information in a free spirit between two great countries . . . . We did the best we could during and after the war under continuously difficult circumstances. Much to our regret we are unable to [carry on the publication of the *Review*] for reasons which are so obvious we need not elaborate on them." The American-Soviet Medical Society, publisher of the *Review*, will "carry on and will continue to keep its members informed about medical developments in the U.S.S.R. by issuing mimeographed reports whenever there is an opportunity." Dr. Sigerist says that the society library will continue to function at the New York Academy of Medicine and that it is hoped the society will some day be able to resume its full program of activities, including the publication of the *Review*. The *Review's* board of editors included such physicians as Drs Leo M. Davidoff, New York; John F. Fulton, New Haven; Bela Schick, New York; Stuart Mudd, Haverford, Pa.; Abraham Stone, New York; Joseph Wortis, New York; Jacob Heiman, New York, and Selman A. Waksman, Ph.D., Clifton, N. J.

**Rheumatic Fever Council.**—At the meeting of the American Council on Rheumatic Fever December 3 in New York City, the following officers were elected for 1949: Dr. Rustin McIntosh, New York, chairman; Mr. Lawrence Linck, Chicago, vice chairman; Dr. Ann G. Kuttner, New York, secretary, and Dr. George M. Wheatley, New York, treasurer. The council, which is part of the American Heart Association, appointed the following committees and chairmen: Research Study Committee, Dr. Kuttner; Committee on Community Rheumatic Fever Programs, Dr. Wheatley; Committee on Standards and Criteria for Rheumatic Fever and Rheumatic Heart Disease, Dr. David D. Rutstein, New York; Membership Regulations Committee, Dr. Harold M. Marvin, New Haven, Conn., and Committee on Education and Training, chairman to be appointed. The American Council on Rheumatic Fever was created in 1944 to correlate the interests of various voluntary health organizations concerned with rheumatic fever and rheumatic heart disease and to coordinate these efforts with similar activities in the government field. The council was established under the certificate of incorporation of the American Heart Association, and there is interlocking membership in the governing bodies of the council and the association. The organizations belonging to the council include: American Academy of Pediatrics, American Association of Medical Social Workers, American College of Physicians, American Heart Association, American Hospital Association, American Medical Association, American Nurses Association, American Public Health Association, American Rheumatism Association, American School Health Association, National Organization for Public Health Nursing and National Society for Crippled Children and Adults.

## FOREIGN

**Medical Society of Aix-les-Bains.**—The meeting of the Medical Society of Aix-les-Bains to be held May 29 will be concerned chiefly with the study of ankylosing spondylarthritis to be presented by Dr. J. Forestier. For further information address Dr. G. du Lac, general secretary of the Medical Society, Rue de Liege, Aix-les-Bains, France.

**Festival to Commemorate Science and Art of Healing.**—The opening service of the Canterbury Festival of 1949 on June 25 will be the Commemoration of the Science and Art of Healing. Doctors and scientists from the United States who are in England are invited to attend. The commemoration service will include the medical and nursing professions and also organizations concerned with medical science and research. The Festival is held each year in Canterbury and a special service of a commemorative nature is planned for its opening.

**Medical School Destroyed by Fire.**—The School of Medicine of the University of Chile was recently virtually destroyed by fire. The library of the school, comprising 50,000 volumes, of which about 40 per cent was saved, had just been reorganized by Edward Heiliger of the Rockefeller Foundation after two years' work. The journals published before 1940 and 40 per cent of those published after 1939 were saved. The extensive bibliographic material in the Institute of Biology and in the Institute of Microbiology was destroyed. The U. S. Army Medical Library is planning to supply from duplicate stocks some of the books and journals needed in the reconstruction of the Chilean collections.

**International Congress of Biochemistry.**—The first International Congress of Biochemistry is to be held in Cambridge, England, August 19-25. The congress is being organized in eleven sections for reading of papers and for discussions on Animal Nutrition and General Metabolism, Microbiological Chemistry, Enzymes and Tissue Metabolism, Proteins, Clinical Biochemistry, Structure and Synthesis of Biologically Important Substances, Cytochemistry, Biological Pigments, Hormones and Steroids, Chemotherapy and Immunochemistry, and Plant Biochemistry. There will also be congress lectures and visits to research institutes and laboratories. The fee is 2 pounds sterling, to be sent to Francis J. Griffin, honorary organizer, 56 Victoria Street, London, S.W.1.

**Cyprus to Wipe Out Malaria.**—After a two year battle to wipe out malaria the Island of Cyprus is nearly free of the disease, according to the *New York Times*. In 1945 40 per cent of all school children suffered from malaria; in 1948 the rate had been reduced to 1.3 per cent. Only 3 new cases were discovered during 1948. The Cyprus health authorities sprayed the entire island and incoming aircraft with DDT (dichloro-diphenyltrichloroethane) at a total cost to date equivalent to $800,000. The island was divided into squares of 3 to 8 square miles, and a weekly report is turned in on every small square. Its topography is so difficult that men have had to be lowered over cliffs to get at some streams and pools; other pools could be reached only by small boats along the coast. Every infant has his blood examined periodically for malaria parasites, as do all school children. The entire campaign is expected to be completed in 1949 well within the original budget of $1,200,000.

## Deaths in Foreign Countries

**Dr. Karl Bonhoeffer**, who was professor of psychiatry at Berlin University from 1912 to 1938, died in Berlin December 4, aged 80. Last May he was made an honorary member of the American Psychiatric Association.

## CORRECTION

**Inter-American Congress on Brucellosis.**—The title of the paper presented by Dr. Leo Lowbeer of Tulsa, Okla., before the Inter-American Congress on Brucellosis at the meeting in Buenos Aires in November was "Pathology of Brucellotic Osteomyelitis in Man and Animal" and not "The Pathology of Swine Brucellosis," as stated in The Journal, January 15, page 167.

# Marriages

William Otis Bailey Jr., Washington, D. C., to Miss Frances Claire Wisnewski of Kingston, Pa., in South Hadley, Mass., December 17.

Arthur D. Wolk, Rutland, Vt., to Miss Florence E. Schwartzberg of Woodmere, L. I., N. Y., November 25.

John Richard Sosnowski, Charleston, S. C., to Miss Elizabeth Wright Tyson in Baltimore, December 11.

James Slater Murphy, New York, to Miss Margaretta Large Fitler of Philadelphia, December 11.

George F. Parton Jr., Bronxville, N. Y., to Miss Phyllis Burdett in Swampscott, Mass., November 27.

Lawrence Stanley Bodziner, New Orleans, to Miss Dena Yaschik of Charleston, S. C., November 14.

Richard Howe Hart, Chicago, to Miss Louise Ann Threlkeld of Maplewood, N. J., November 26.

Harold Redd Jr., Lexington, Ky., to Miss Phyllis Virginia Anderson at Oglesby, Ill., November 16.

Kenneth Robert Niswander to Miss Marjorie Ruth Fowler, both of Buffalo, December 20.

Gemma Margaret Lichtenstein to Mr. Homer Rigdon Rizner, both of Chicago, December 10.

Wilson Greene Jr., Sumter, S. C., to Miss Anne Porcher Gregorie of Charleston, December 18.

Hurst Bunn Hatch, Raleigh, N. C., to Miss Frances Gail Buchtel in New Orleans, December 3.

Erwin Oskar Hirsch, Boston, to Miss Emily Grant Stanley in Orange, N. J., November 27.

James Francis Morrell to Miss Joan Marie Vaughan, both of Brooklyn, November 13.

Arthur Miller, Brooklyn, to Miss Hope Ruth Simon of New York, December 5.

# Deaths

**Arthur Many Johnson**, Rochester, N. Y.; born in Binghamton, N. Y., Nov. 4, 1874; Albany (N. Y.) Medical College, 1895; member of the American Medical Association and of the American Public Health Association; coroner's physician from 1902 to 1904; part time health physician from 1905 to 1921 and deputy health officer from 1921 to 1925, when he became full time deputy health officer; health officer from 1932 to 1945; served during World War I; part time lecturer in medicine (public health) at the University of Rochester School of Medicine and Dentistry, where he was consultant in public health from 1932 to 1938; in 1943 the Rochester Academy of Medicine presented him its highest award, the Albert D. Kaiser Medal, for "outstanding service to the medical profession"; member of the board of visitors of the Rochester State Hospital; on the consulting staff of Strong Memorial Hospital, where he died November 30, aged 74, of carcinoma of the lung.

**Herbert Charles Gibner** ⊕ Colonel, U. S. Army, retired, San Francisco; born in Bridgeport, Conn., Oct. 9, 1879; Yale University School of Medicine, New Haven, 1903; Army Medical School, 1905; Army War College, 1924; fellow of the American College of Surgeons; entered the medical corps of the U. S. Army as a first lieutenant in 1905; promoted through the various ranks to that of colonel; served during World War I; retired Jan. 13, 1943; formerly commandant of the Army Specialized Training Unit of the University of California Medical School and commandant of the U. S. Army Medical Field Service School at Carlisle, Pa.; in 1945 received the Legion of Merit for outstanding service while Seventh Service Command surgeon; died in the Letterman General Hospital, November 13, aged 69, of carcinoma of the ampulla of Vater with generalized carcinomatosis.

**Earl Kendall Holt**, Medfield, Mass.; Indiana University School of Medicine, Indianapolis, 1914; member of the American Medical Association, American Psychiatric Association and New England Society of Psychiatry; specialist certified by the American Board of Psychiatry and Neurology, Inc.; formerly director of the division for the examination of prisoners in the department of mental diseases; served in various capacities while assigned to the Veterans Bureau; at one time assistant superintendent of the Monson State Hospital in Palmer; consultant for the Norfolk County Hospital, Braintree; for many years superintendent of the Medfield State Hospital; died November 10, aged 59, of coronary occlusion.

**Courtland Prentice Gray Sr.** ⊕ Monroe, La.; born in Pelahatchie, Miss., in 1882; Maryland Medical College, Baltimore, 1904; past president of the Louisiana State Medical Society, Fifth District Medical Society and the Quachita Parish Medical Society; formerly councilor of the Fifth District of the Louisiana State Medical Society; for many years coroner of Quachita Parish; examiner of the local draft board during World War I; member of the board of appeals, Selective Service, during World War II; on the staff of St. Francis Sanitarium; superintendent of the Conway Memorial Hospital; died November 20, aged 66, of cerebral hemorrhage.

**Holland McTyeire Tigert** ⊕ Nashville, Tenn.; University of Nashville Medical Department, 1901; past president of the Tennessee State Medical Association, Nashville Academy of Medicine and the Davidson County Medical Society; member of the Southern Surgical Association; fellow of the American College of Surgeons; served overseas during World War I; associate professor of clinical gynecology at the Vanderbilt University School of Medicine; member of the surgical staff, Vanderbilt, St. Thomas and Nashville General hospitals; died in the Veterans Administration Hospital November 14, aged 68.

**Edward J. Tracey** ⊕ Norwalk, Conn.; University of Pennsylvania School of Medicine, Philadelphia, 1924; certified by the National Board of Medical Examiners; fellow of the American College of Surgeons; for many years physician to the city fire department; served on the faculty of Columbia University College of Physicians and Surgeons in New York; on the staff of the Norwalk General Hospital; affiliated with the New York Post-Graduate Medical School and Hospital in New York, where he died November 17, aged 48, of Laennec's cirrhosis of the liver.

**Abner Osburn Albin**, Charles Town, W. Va.; College of Physicians and Surgeons, Baltimore, 1903; died November 15, aged 72, of carcinoma.

**Thomas Edward Bailly**, San Francisco; Cooper Medical College, San Francisco, 1892; member of the American Medical Association; fellow of the American College of Surgeons; for many years affiliated with St. Mary's Hospital, where he died November 15, aged 79, of arteriosclerosis.

**Leonard Allen Baker** ⊕ Miami, Fla.; University of Georgia Medical Department, Augusta, 1908; affiliated with Jackson Memorial Hospital; died November 5, aged 66, of uremia.

**Raymond DeWight Baker** ⊕ Summit, N. J.; University and Bellevue Hospital Medical College, New York, 1899; served during World War I; affiliated with Overlook Hospital; died in Lumberton, N. C., November 3, aged 70, of injuries received in an automobile accident.

**Hendrick Nelson Belgum**, Richmond, Calif.; Rush Medical College, Chicago, 1911; died November 8, aged 64, presumably of a coronary attack while fighting a brush fire.

**John Robert Belk**, Kershaw, S. C.; Medical College of the State of South Carolina, Charleston, 1913; died in the Camden (S. C.) Hospital November 19, aged 70, of heart disease.

**George B. Beresford**, Owensville, Ind.; Indiana Eclectic Medical College, Indianapolis, 1887; member of the American Medical Association; died November 5, aged 85, of uremia.

**Don Bertus Biggs**, Findlay, Ohio; Starling Medical College, Columbus, 1902; member of the American Medical Association; formerly county coroner; affiliated with the Findlay Hospital; died recently, aged 75, of coronary thrombosis.

**Roy Henry Blender**, Seattle; University of Arkansas School of Medicine, Little Rock, 1938; died November 6, aged 37, of uremia.

**Louisa Elizabeth Boutelle**, Cherokee, Iowa; University of Minnesota Medical School, Minneapolis, 1916; member of the American Medical Association, Utah State Medical Association and the New England Society of Psychiatry; certified by the National Board of Medical Examiners; affiliated with Cherokee State Hospital; died November 3, aged 62, of coronary occlusion.

**William Hollis Bradford** ⊕ Chevy Chase, Md.; University of Cincinnati College of Medicine, 1928; member of the Florida Medical Association; assistant chief of surgical service at the central office of Veterans Administration in Washington, D. C.; served as chief medical officer and manager of the Veterans Administration Hospital in Brecksville and on the staffs of various other Veterans Administration hospitals; died in the Crile Veterans Administration Hospital in Cleveland, November 15, aged 47, of carcinoma of the rectum.

**Arthur Scott Bronson**, San Antonio, Texas; Homeopathic Medical College of Missouri, St. Louis, 1901; member of the American Medical Association; specialist certified by the American Board of Otolaryngology; a charter member and past president of the San Antonio Eye, Ear, Nose and Throat Society; on the staffs of the Robert B. Green Hospital, Santa Rosa Hospital and Medical and Surgical Memorial Hospital; died recently, aged 69, of heart disease.

**Ethel Doty Brown** ⊕ New York; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1890; served as trustee of the New York Infirmary; died in the New York Hospital November 8, aged 80.

**Frank Louis Brown** ⊕ Chicago; Chicago College of Medicine and Surgery, 1912; fellow of the American College of Surgeons; in 1931 member of the House of Delegates of the American Medical Association; on the staff of the Garfield Park Community Hospital; died December 7, aged 62, of carcinoma of the liver.

**George Byron Brown**, Clarion, Iowa; John A. Creighton Medical College, Omaha, 1915; member of the American Medical Association; served during World War I; formerly mayor of Clarion and county coroner; died recently, aged 66, of cerebral hemorrhage and hypertension.

**Theodore David Burger**, Spokane, Wash.; University of Illinois College of Medicine, Chicago, 1913; member of the American Medical Association; served on the school board; on the staff of the Deaconess Hospital; died recently, aged 61.

**Bruce Fowler Butler**, Hollywood, Fla.; University College of Medicine, Richmond, 1911; member of the American Medical Association; died in the Duke Hospital, Durham, N. C., November 14, aged 61.

**Arthur M. Butzow** ⊕ Chicago; Rush Medical College, Chicago, 1898; on the staff of the Swedish Covenant Hospital, where he died November 21, aged 74, of coronary thrombosis.

**Edwin Alga Cameron** ⊕ East Orange, N. J.; University of Vermont College of Medicine, Burlington, 1915; served during World War I; affiliated with the Orange, N. J., Memorial Hospital; died November 17, aged 57, of coronary occlusion.

**Matthew Elmer Campbell,** Abilene, Texas; Barnes Medical College, St. Louis, 1899; member of the American Medical Association; died October 15, aged 80, of arteriosclerosis.

**Walton Gardner Card** ⊕ Haverhill, Mass.; Tufts College Medical School, Boston, 1925; on the staff of Hale Hospital; died November 11, aged 59, of heart disease.

**James Gilbert Carney,** San Francisco; University of Illinois College of Medicine, Chicago, 1914; served in France during World War I; formerly affiliated with the Veterans Administration; died November 9, aged 67.

**Starr King Church,** Marshall, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; member of the American Medical Association; past president of the Calhoun County Medical Society; served as a member of the city council, county coroner, health officer and secretary of the school board; for many years secretary-treasurer of the Rotary Club and physician for the New York Central Railroad; affiliated with the Oaklawn Hospital, where he died November 19, aged 81, of carcinoma of the bladder.

**David Wesley Clark,** Vega, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1891; member of the American Medical Association; past president of the Randall-Deaf Smith-Parmer-Castro-Oldham Counties Medical Society; served as secretary of the Montague County Medical Society; for many years health officer of Montague County and Oldham County; died October 5, aged 79, of cerebral hemorrhage.

**Henry F. Clay,** Henderson, Ky.; University of Louisville (Ky.) Medical Department, 1898; member of the American Medical Association; died in St. Anthony's Hospital, Rock Island, Ill., November 5, aged 76.

**Grover Cleveland Coleman** ⊕ Birmingham, Ala.; University of Alabama School of Medicine, 1911; for many years associated with the Tennessee Coal, Iron and Railroad Company; died in Panama City, Fla., November 15, aged 64, of coronary occlusion.

**Harry Samuel Conrad** ⊕ St. Joseph, Mo.; Ensworth (Mo.) Medical College, St. Joseph, 1913; past president of the Buchanan County Medical Society; died November 20, aged 62.

**George Holden Coombs** ⊕ Waldoboro, Me.; University of the City of New York Medical Department, New York, 1886; formerly director of the state bureau of health; past president of the Maine Medical Association and of the Knox County Medical Society; affiliated with Knox County General Hospital, Rockland, and Miles Memorial Hospital in Damariscotta, where he died November 20, aged 85, of intracranial hemorrhage.

**John Robert Crawford,** Blue Springs, Mo.; Marion-Sims College of Medicine, St. Louis, 1893; died in the Veterans Administration Hospital, Wadsworth, Kan., October 20, aged 79, of arteriosclerotic heart disease and amputation of a right extremity.

**William Eugene Currier,** Leominster, Mass.; Harvard Medical School, Boston, 1898; member of the American Medical Association; a retired school physician; affiliated with the Leominster Hospital; died November 23, aged 77, of coronary thrombosis.

**Elbert Austin Curtis** ⊕ Newark, N. J.; Marion-Sims College of Medicine, St. Louis, 1896; served during World War I; on the staffs of City Hospital, Presbyterian Hospital and Hospital of St. Barnabas for Women and Children; died December 2, aged 75.

**Ella Buchanan Custer,** Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1883; member of the American Medical Association; recipient of the Citizenship Award as the outstanding citizen of the twenty-first ward during 1934; died November 8, aged 87, of coronary occlusion.

**Mardiros Hovhannes Derian** ⊕ Gary, Ind.; Loyola University School of Medicine, Chicago, 1918; affiliated with Methodist and St. Mary's Mercy hospitals; died in Chicago Memorial Hospital November 1, aged 61, of pulmonary embolus and purulent pericarditis.

**Frank Henry Dillon,** Colchester, Ill.; St. Louis College of Physicians and Surgeons, 1909; died in St. Francis Hospital, Macomb, November 6, aged 63.

**David Ernest Dolloff** ⊕ Biddeford, Me.; Medical School of Maine, Portland, 1907; served overseas during World War I; affiliated with the Trull and Webber hospitals; died November 26, aged 70, of cerebral embolism.

**LeRoy Edson Doolittle** ⊕ Duluth, Minn.; University of Minnesota Medical School, Minneapolis, 1909; served during World War I; affiliated with St. Luke's Hospital and St. Mary's Hospital, where he died November 9, aged 65, of coronary occlusion and hypertension.

**William Tovey Drysdale,** Boise, Idaho; Denver and Gross College of Medicine, 1903; served during World War I; specialist certified by the American Board of Psychiatry and Neurology, Inc.; member of the American Psychiatric Association; served on the staffs of Veterans Administration hospitals at various places; on the staff of the Veterans Administration Hospital in Boise, where he died November 16, aged 66, of cerebral thrombosis.

**John Dugan** ⊕ Albion, N. Y.; University of Buffalo School of Medicine, 1896; an Associate Fellow of the American Medical Association; served as health officer; medical examiner for the county draft board during World Wars I and II; died in Rochester, November 12, aged 77, of coronary heart disease.

**John P. Du Pre,** Fountain Inn, S. C.; Medical College of the State of South Carolina, Charleston, 1903; died in the Greenville (S. C.) General Hospital November 15, aged 76, of hypertrophic arthritis and melanoma.

**Henry Wyley Giles,** Aledo, Ill.; Keokuk (Ia.) Medical College, 1895; died in Geneseo, November 6, aged 87.

**Frank Henry Gordon,** Los Angeles; Rush Medical College, Chicago, 1891; died November 1, aged 82, of pneumonia.

**Kurt Max Grassheim** ⊕ New York; Johann Wolfgang Goethe-Universität Medizinische Fakultät, Frankfurt-am-Main, Prussia, 1921; died in the Harkness Pavilion of the Columbia Presbyterian Medical Center November 15, aged 51.

**Wilmer Eli Griffith,** Columbus, Ohio; Columbian University Medical Department, Washington, D. C., 1900; once health commissioner of Hamilton, where he was on the staffs of the Mercy and Fort Hamilton hospitals; died in Bridgeville, Pa., recently, aged 80, of arteriosclerosis.

**Francis E. Griswold,** Hoffman, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1897; member of the American Medical Association; served on the staff of Our Lady of Mercy Hospital, Alexandria; died in Minneapolis November 1, aged 74, of carcinoma.

**John Henry Hallock,** Saranac Lake, N. Y.; New York Homeopathic Medical College, New York, 1886; died November 3, aged 90.

**Eugene Paul Hamilton,** Richmond, Mo.; St. Louis University School of Medicine, 1908; member of the American Medical Association; formerly practiced in Kansas City, where he was on the staffs of the Kansas City General, St. Joseph and St. Mary's hospitals; died November 1, aged 68, of coronary occlusion.

**George Johnson Hamilton,** New York; L. R. C. P. and M. R. C. S., London, 1934; council of the American Proctologic Society; served in the European theater during World War II; on the staff of the Polyclinic Hospital; died November 12, aged 47.

**John Cyril Hewgill,** Akron, Ohio; University of Toronto Faculty of Medicine, London, Ontario, Canada, 1922; served during World Wars I and II; died suddenly, November 8, aged 50.

**John Levoy Higbie,** Jenera, Ohio; Missouri Medical College, St. Louis, 1888; served as president of the Jenera Bank, mayor of the village and on the board of education; died in Sawyer Sanatorium, Marion, November 12, aged 85, of arteriosclerotic heart disease.

**Thomas Yue Ho** ⊕ St. Johns, Mich.; Northwestern University Medical School, Chicago, 1923; member of the American Society of Anesthetists and the Radiological Society of North America; for many years secretary-treasurer of the Clinton County Medical Society; affiliated with Clinton Memorial Hospital; died November 19, aged 51, of heart disease.

**Edgar Rea Holmes,** Minier, Ill.; College of Physicians and Surgeons of Chicago, 1887; member of the American Medical Association; died in Mennonite Hospital, Bloomington, November 16, aged 84.

**Joel Dubois Holston** ⊕ Massillon, Ohio; Eclectic Medical Institute, Cincinnati, 1896; member of the Radiological Society of North America, Inc., and the American College of Radiology; specialist certified by the American Board of Radiology; served during World War I; formerly member of the board of education; on the staff of the Massillon City Hospital; died in the University Hospital, Cleveland, recently, aged 80, of sarcoma of the adrenal glands.

**Rinaldo M. Hughey,** Washington C. H., Ohio; Columbus Medical College, 1891; member of the American Medical Association; for many years president of the school board; for two terms member of the state legislature, serving as county representative; died recently, aged 81, of chronic myocarditis.

**Annie M. Hull,** Glens Falls, N. Y.; New York Medical College for Women, New York, 1903; member of the American Medical Association; died November 22, aged 70.

**Richard Cooke Johnston,** Spokane, Wash.; University of Pennsylvania School of Medicine, Philadelphia, 1937; member of the American Medical Association; awarded the Bronze Star for meritorious service with the Marines on Peleliu Island during World War II; died November 15, aged 36, of coronary occlusion.

**Richard F. King,** Jamestown, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1881; died recently, aged 93, of cardiovascular renal disease.

**Mark Stevens Knapp,** Fenton, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1898; member of the American Medical Association; fellow of the American College of Physicians; first executive secretary and director of medical research, Horace H. and Mark A. Rackham Fund; formerly practiced in Flint, where he was president of the Genesee County Medical Society, health officer, and on the staffs of the Hurley and Women's hospitals; died November 11, aged 76.

**Morton Paul Lane,** New York; Tulane University of Louisiana School of Medicine, New Orleans, 1914; served during World War I; died in the Veterans Administration Hospital November 5, aged 58.

**Robert Hood Lister,** Ozark, Ala.; University of Alabama School of Medicine in University, 1916; served during World War I; died November 7, aged 62, of heart disease.

**George Munro Livingston** ⊕ Albion, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1898; for many years associated with the Highland Park (Mich.) General Hospital; died in Sheldon Memorial Hospital, November 1, aged 81, of cerebral hemorrhage.

**William Sumner McCausland,** Chula Vista, Calif.; Western Pennsylvania Medical College, Pittsburgh, 1904; member of the American Medical Association; served as chief of staff of Chula Vista Hospital; died November 7, aged 70, of adenocarcinoma of the stomach.

**William C. McClain,** Knoxville, Tenn.; Lincoln Memorial University Medical Department, Knoxville, 1913; member of the American Medical Association; died in Fort Sanders Hospital November 1, aged 66, of agranulocytic neutropenia.

**Milton T. McDowell,** Maxwell, N. M.; Louisville (Ky.) Medical College, 1901; died October 9, aged 76, of coronary thrombosis.

**Noah C. McLean,** Enid, Okla.; Barnes Medical College, St. Louis, 1899; died in a hospital at Wichita, Kan., recently, aged 78, of carcinoma of the prostate.

**William John McNerney** ⊕ Syracuse, N. Y.; Syracuse University College of Medicine, 1912; clinical professor emeritus of medicine at his alma mater; affiliated with the Hospital of Good Shepherd; died November 17, aged 64, of heart disease.

**Jesse Lynn Mahaffey** ⊕ Camden, N. J.; Medico-Chirurgical College of Philadelphia, 1902; past president of the Conference of State and Provincial Health Authorities and of the Camden County Medical Society; for many years director of the state board of health; served on the staff of Cooper Hospital; died November 1, aged 69.

**Edwin J. Meyer** ⊕ Chicago; Chicago College of Medicine and Surgery, 1913; formerly on the faculty of the Loyola University School of Medicine; for many years on the staff of St. George Hospital, where he died November 10, aged 65, of chronic interstitial nephritis.

**Bernard A. Michel** ⊕ Dubuque, Iowa; University of Pennsylvania Department of Medicine, Philadelphia, 1889; fellow of the American College of Surgeons; served on the staffs of Finley and St. Joseph's Mercy hospitals; died November 5, aged 88, of chronic myocarditis.

**Guy Miller,** Charlotteville, Va.; University of Virginia Department of Medicine, Charlottesville, 1888; also a pharmacist; died October 19, aged 79, of carcinoma.

**David Mathew Mitchel,** Brush, Colo.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1910; died in the Eben-Ezer Hospital, recently, aged 71.

**Eugene Poland Mitchell,** Defiance, Ohio; University of Louisville (Ky.) School of Medicine, 1923; member of the American Medical Association; formerly secretary treasurer of the Defiance County Medical Society; for many years city health commissioner; died in the Defiance Hospital recently aged 54, of carcinoma.

**Marshal Chalmers Morgan** ⊕ Akron, Ohio; Ohio State University College of Medicine, Columbus, 1913; died November 5, aged 61, of chronic nephritis with hypertension.

**Elmer J. Morrison,** Bar Harbor, Me.; College of Physicians and Surgeons, Baltimore, 1898; formerly member of the state legislature; served in the U. S. Navy during World War I; first medical examiner of Hancock County; died November 5, aged 86.

**Marjory M. Orr,** Belding, Mich.; Grand Rapids Medical College, 1902; died November 6, aged 74, of cerebral hemorrhage.

**Luther James Osgood** ⊕ Waukegan, Ill.; Northwestern University Medical School, Chicago, 1903; associate professor of medicine, emeritus, at his alma mater; died in the Lake Forest (Ill.) Hospital, November 6, aged 72, of carcinoma of the lung.

**Lewis Henry Pirkle,** Shreveport, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1904; member of the American Medical Association; fellow of the American College of Surgeons; medical examiner for the draft board during World Wars I and II; served as member and president of the parish school board; affiliated with Tri-State Sanitarium, of which he had been a founder, and Shreveport Charity Hospital; died in the North Louisiana Sanitarium November 5, aged 75, of heart disease.

**John Alexander Price,** Jasper, Tenn.; University of Tennessee Medical Department, Nashville, 1907; served during World War I; died November 10, aged 68, of cerebral hemorrhage.

**Lewis DeWitt Reed** ⊕ Hope, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1890; served as county health officer; for many years health officer of Hope; medical examiner and member of the advisory board during World War I; died October 16, aged 85, of carcinoma of the intestine.

**Burton William Rhuberry,** Detroit; Northwestern University Medical School, Chicago, 1943; served a residency at the Leland Sanatorium in Ypsilanti, Mich.; died in the Detroit Tuberculosis Sanatorium November 7, aged 34, of pulmonary tuberculosis.

**Edwin Albert Reisenfeld,** New York; University of Buffalo School of Medicine, 1903; served on the staffs of the Beth Israel Hospital and the Harlem Hospital; died in Cedars of Lebanon Hospital, Los Angeles, November 7, aged 67.

**Michael Davitt Riordan,** Willimantic, Conn.; University of Vermont College of Medicine, Burlington, 1912; member of the American Medical Association and the New England Obstetrical and Gynecological Society; health officer of the towns of Chaplin and Windham; affiliated with Windham Community Memorial Hospital; died October 28, aged 65, of myocardial infarction.

**Homer Lawrence Spaulding,** Ankeny, Iowa; Columbian University Medical Department, Washington, D. C., 1895; member of the American Medical Association; affiliated with Iowa Lutheran and Iowa Methodist hospitals; died October 23, aged 84, of bronchopneumonia.

**Romeo Roderick Stevenson,** Sioux Falls, S. D.; Northwestern University Medical School, Chicago, 1894; died October 25, aged 82, of cerebral embolus.

**William John Stewart,** Frankfort, Kan.; Kansas Medical College, Medical Department of Washburn College, Topeka, 1909; member of the American Medical Association; president of the Marshall County Medical Society; served as county health officer and coroner; affiliated with Christ Hospital, Topeka, where he died October 21, aged 79, of coronary occlusion.

**Nathan Palmer Thompson,** St. Louis; Missouri Medical College, St. Louis, 1888; member of the American Medical Association; died October 31, aged 81.

**William E. Wheatley** ⊕ Lorain, Ohio; Western Reserve University Medical Department, Cleveland, 1894; served on the staff of St. Joseph's Hospital; fellow of the American College of Surgeons; recipient of the 1930 Achievement Award presented by the *Lorain Journal* to the town's most valuable citizen; died October 25, aged 77, of carcinoma of the pharynx.

**Bert George Wilcox** ⊕ Joliet, Ill.; Chicago College of Medicine and Surgery, 1912; fellow of the American College of Surgeons; member of the American Association of Industrial Physicians and Surgeons; affiliated with the Silver Cross and St. Joseph's hospitals; died in the Mayo Clinic, Rochester, Minn., November 3, aged 67, of carcinoma of the bladder.

**Samuel Rodford York** ⊕ Center, Ky.; University of Nashville (Tenn.) Medical Department, 1899; served as president of the Metcalf County Medical Society; on the staff of the T. J. Sampson Community Hospital, Glasgow; died October 29, aged 80, of coronary thrombosis.

# Foreign Letters

## LONDON

*(From Our Regular Correspondent)*

Dec 29, 1948.

### The Extravagance of the National Health Service

A characteristic of the socialist National Health Service, as of all other measures of the Government, is that it is costly and extravagant. This fact is illustrated by the following cases. Two partners set up practice in a small seaside town on June 1, 1948, only a few weeks before the coming into force of the service. They applied for the fixed annual payment of $1,200 which they said they had relied on, as the Ministry of Health had declared that new entrants to general practice would get a fixed annual payment for three years, and they could not continue practice without the payment. There were only 300 patients on their combined lists at the beginning of September. The local medical committee refused this request on the grounds that there were enough doctors in the area before the new practice was started and that the area could not provide a competence for two extra doctors. The doctors appealed to the Minister of Health against this decision, which he reversed on the following grounds: 1. The doctors had just started a new practice and would suffer hardships without the $1,200. 2. The number of doctors in the area is a factor to be taken into account in considering applications made after July 5 to be placed on the medical list but ought not to affect the granting of the $1,200. But the conditions were laid down that within a period to be specified by the Distribution Scheme (when available) the doctors have on their lists the minimum number of patients specified by that scheme.

A similar appeal was made in the case of a doctor practicing in another small seaside town, who took a younger man into partnership a short time before the service came into force. Both doctors applied for the $1,200 a year. The local medical committee refused on the grounds that the practice was originally a one doctor practice, the younger doctor could be regarded as undergoing a period of introduction with view to succession and there was no question of hardship if the practice was so regarded. But the Minister again reversed the local decision. The *British Medical Journal* regards as remarkable that a Minister who introduced elaborate machinery to secure a reasonable distribution of doctors should "subsidize practitioners at the public expense—and at the expense of other practitioners in the area—to practice in an area where they are not needed."

Extravagance as regards materials has been mentioned in previous letters to THE JOURNAL, such as the case of the woman who evidently had no need for the free medicine which had been prescribed for her under the National Health Service, and obtained, with the connivance of the pharmacist, free cosmetics instead. The waste of the taxpayer's money in other directions is becoming more evident, Dr. G. H. Harvey writes to the *British Medical Journal* that he is amazed by the extras, such as douches, nozzles, eye baths, pessaries, etc., which he is invited to supply. The strange and alarming fact is that the patients think that they get all these extras free because a benevolent government supplies them. He is convinced that the huge cost of prescribing now piling up will soon return to the public for payment by increased taxation.

In another letter to the *British Medical Journal* he relates what happens to some of the articles which have been supplied free. In the pawnshops of the town he found a considerable number of brand new spectacles. The rush for free spectacles has been mentioned in a previous letter to THE JOURNAL.

### Beryllium Poisoning

What appears to be the first death in this country from beryllium poisoning has been the subject of a coroner's inquest. The deceased was a physicist, aged 36 years, who had worked between December 1941 and December 1942 on the development of tubular fluorescent lamps. He handled about 500 tubes coated internally with phosphorescent powders containing zinc, beryllium, magnesium and tungstate. In November 1945, three years after his last significant exposure to beryllium, he suffered from cough and expectoration and lost weight rapidly. Radiography led to a tentative diagnosis of miliary tuberculosis. But sputum examination was negative for tubercle bacilli. Death was due to pulmonary granulomatous fibrosis.

Dr. John Agate, of the Department for Research in Industrial Medicine, who had examined the deceased, gave evidence that the pulmonary fibrosis was due to exposure to the dust of beryllium compounds. Asked by the coroner about prevention, he thought that the best course would be to abandon the use of beryllium wherever possible. It would be possible to extract the dust from processes, but he was not sure that safety would be thus secured. The deceased was exposed to risk by doing research on fluorescent lamps at a time when the delayed form of pneumonitis due to beryllium was not recognized. A representative of the employers stated that preventive measures had been adopted. New fluorescent powders which did not contain beryllium were being evolved. A verdict of death by misadventure was returned. Recent American reports show that the handling of beryllium compounds is attended by risk of dermatitis or pulmonary disease.

### International Congress of Ophthalmology

The Sixteenth International Congress of Ophthalmology will be held in London under the presidency of Sir Stewart Duke-Elder July 17 to 21, 1950. Any qualified medical practitioner may become a member. Relatives and friends of members will be welcomed as associate members and may attend the opening and closing ceremonies and all social functions. The official languages are English, French and Spanish, but any language may be used. The International Council of Ophthalmology has agreed on two main discussions on the following subjects: (1) "The Role of the Sympathetic System in the Genesis of Vascular Hypertension and Its Effect on the Eye," and (2) "The Clinical and Social Aspects of Heredity in Ophthalmology." Those desirous of participating in the main discussions or reading communications on other ophthalmologic subjects should communicate with Mr. Keith Lyle, International Congress of Ophthalmology, 45 Lincoln's Inn Fields, London, W. C. 2.

### Increase of Blood Transfusion

The Ministry of Health states that more donors gave blood to the National Blood Transfusion Service during the June quarter of this year than at any time since the war. In all, there were 98,055 donors, including 24,075 new ones. In the same period 30,497 persons joined the service—the highest number since March 1947. This brings the total number up to 377,304 for England and Wales. To provide for future needs of the service due to increasing demands, it is estimated that another 142,000 donors are required.

### Decline of Venereal Disease in British Army of the Rhine

The deep concern aroused in this country by the prevalence of venereal disease among the youthful soldiers of the British Army occupying Germany has been mentioned in a previous letter to THE JOURNAL. A deputation of Free Church leaders who recently visited the British Army of the Rhine now reports that young men have "not just been thrust willy-nilly into a kind of modern Babylon." A great improvement has taken place. Venereal disease has fallen to a remarkable degree, and every care is being taken of the soldiers by experienced men and women. Among the factors which have contributed to the improvement are the better conditions of the Germans, which has raised their morale. There is less inducement for a German woman to sell herself for food and cigarets, as she was eager to do when young soldiers first went to Germany. The black market then was rampant and the troops' rations of cigarets and chocolate gave them fantastic bargaining power. Fresh arrivals of the British Army for the first few weeks are now allowed to go to town only in the company of a non-commissioned officer. All sorts of facilities for social, cultural, moral and spiritual development have been liberally provided.

## PARIS

*(From Our Regular Correspondent)*

PARIS, Dec. 18, 1948.

### The Number of Doctors in France

At the request of the Council of the National Order of Doctors, the Ministry for Public Health has created a Commission of Medical Demography, in which the Ministry of National Education, the Home Office, the Ministers of Labor, of Public Health and Population, the National Order of Doctors, the Confederation of the Syndicate of Doctors and the Army Medical Corps will be represented. Mr. Magnin (Lyons) has been entrusted with inquiring from the district councils of the order; Mr. Levi (Ministry of Public Health) has the same mission of getting information from the services and the directors of the Ministry for Public Health. On October 14, Mr. Magnin reported the results of his study, limited to the metropolis. In 1900 there were 17,000 doctors; in 1939, 28,397 and in 1947 there were 30,754. Thus the ratio has passed from 1 doctor for 2,200 inhabitants to 1 for 1,300, which is equal to that of Belgium, but smaller than the ratio for Denmark, United States and Argentina and larger than the one for Mexico and Sweden. There is 1 general practitioner for 2,000 inhabitants and 1 specialist for 7,800. The number of physicians is higher in the districts with large cities, but for France as a whole there is an unsatisfactory distribution. An inquiry in twenty-two districts has revealed that 16 per cent of the practicing doctors are over 65 years of age (age at which they are eligible for pension), an important number still practice after 70, and the number of doctors under 40 years is equal to the number of those over 50. The number of medical students has increased from 7,336 in 1926 to 10,480 in 1938. There is a strong concentration in Paris, where half of the theses of France are submitted. Taking into account a diminution of about 38 per cent in the number of students (discontinuation of studies, girl students marrying) it is estimated that in 1953 13,500 students will have finished their studies. It is estimated that if in six years 6,200 doctors will have ceased practicing, there will be 40,000 doctors in 1955, 50,000 in 1960 and 60,000 in 1970. As from 1949-1950 measures are considered to restrict the admission of students for the study of medicine.

### Antibiotic Enzymes Rendered Specific Through Associated Cultures

J. Risler has studied the antibiotic potency of Aspergillus flavus with green sporulation (A. A. M. R. selected strain); cultivated in a Czapek-Dox medium to which peptone and glucose are added, it yields a metabolic fluid strongly antibiotic as regards numerous gram-positive and gram-negative microbes, but without any effect on the human or bovine bacillus of tuberculosis. By pursuing his research with German, Morel and others, he has obtained, through associated cultures of Koch's bacillus and of this mold, the elaboration of an enzyme strongly antibiotic for the tuberculosis bacillus. At the last meeting of the Academy of Sciences, the author presented his new method: on a twenty-one day culture of human virulent tubercle bacilli, developed on a Sauton or Massol-Breton medium, spores of A. flavus are inoculated; the tubercle bacillus culture medium is drawn off and replaced with the one of the mold. After five days in an incubator at 30 C., the A. flavus sporulation is very intense, and in the underlying medium an amber-colored pigmentation is seen, characteristic of the antibiotic enzyme. If some spores, taken from this associated culture, are inoculated again on a homogenous culture of the de Courmont's tubercle bacillus, after a fresh sporulation a clearing (under the mycelium area), sets in, which gains in depth little by little; this is the sign of the formation of the antibiotic enzyme, which may be activated by means of successive passages. The antibiotic potency of the enzyme from an associated culture is specific for Koch's bacillus, but it has no effect on Staphylococcus aureus. Guinea pigs inoculated with a human tubercle bacillus strain and treated either with the enzymic liquid originating from the pigmented area of the associated culture or with the enzyme filtrated, precipitated and purified, failed to present classical manifestation of evolutive tuberculosis on the ninetieth day. Out of 10 control guinea pigs, contaminated under the same conditions, 7 died between the thirty-fifth and the fifty-second day.

### *Fight Against Cholera*

The World Health Organization and the International Office for Public Hygiene have convened medical experts representing Egypt, India, Great Britain, Sweden and France, in Paris, to study the fight against cholera; among others present were Sir Aly Tewfik Shousha, Under-Secretary for Public Health (Egypt); Dr. C. J. Pandit, Secretary to the Indian Research Fund Association, and Dr. Bruce White, National Institute for Medical Research, London. The specialists recommend that studies on the endemicity be made on the spot and that teams of specialists, organized by the World Health Organization, be sent to make tests in those endemic regions. On the other hand, it has been recommended that experimental research be pursued actively in order to improve methods of prophylaxis. The experts recommend tests in endemic regions and threatened countries with the anticholeric vaccine, recently discovered by Major-General Sir Sahib Sokhey, which, in experimental research, appears to be ten times more effective than ordinary vaccines. The next discussion of the World Health Organization experts' committee regarding the revision of sanitary international conventions will be based on the recommendations of this group of specialists.

The next meeting of the experts for the fight against cholera will take place in a country where cholera is constantly present, in order to study territorial conditions and to profit by the experience of local experts.

### *Professor Roussy is Dead*

Gustave Roussy died on Sept. 30, 1948. He had been appointed professor of pathologic anatomy in 1925 and elected dean of the Paris Faculty in 1933. In 1937, he was appointed vice-chancellor of the Paris Academy, from which position he was relieved by the Vichy Government in 1940, as a consequence of the students' demonstration on November 11, but he resumed his appointment as from the liberation in August 1944. Since 1939 he had been a member of the Academy of Sciences. He was a Doctor Honoris Causa of several foreign universities. As a clinician, he was much interested in physiologic and anatomopathologic studies. Besides his many textbooks, his name is attached to numerous works on the pathologic physiology of the hypophysis and on the genesis of cancer; he has, in collaboration with J. Camus, described the part of the tuber cinereum and, with Dejerine, the thalamic syndrome. On his initiative was created the Cancer Institute, of which he was director, one of the most important research centers for this disease.

## TURKEY

*(From Our Regular Correspondent)*

Ankara, Dec. 7, 1948.

### Leprosy Control in Turkey

The early seventeenth century primitive leprosariums of Istanbul, Edirne, Konya and Zafranbolu have now fallen into ruin. Sultan Mahmud II (1765-1839) established the first large leprosarium in Istanbul-Scutari near the big Selimiye Barracks, where Florence Nightingale nursed the wounded during the Crimean War in 1856. In the nineteenth century Prof. Zambaco Pasha of the Istanbul Medical School was of the opinion that leprosy is not a contagious disease; in 1901 Prof. Suleyman Numan Pasha taught his students that it is an infectious disease and is not easily transmitted from man to man, contending that the Imam, who for many years lived among the unfortunates at the Scutari leprosarium, did not contract the disease.

Though the lepers come mostly from the eastern provinces of Kas, Erzurum, Agri and Van, which border on Russia and Iran, lepers have been found in the Sivas, Kayseri, Gaziantep, Marash, Hatay and Afyonkarahisar provinces. The two modern leprosariums have at present almost 400 inmates, all paupers from rural communities; no well to do leper has yet been found in an urban community.

Provincial health officers and city health officers are always vigilant against lepers, and besides the people themselves inform the health officer if they think that there is an afflicted person somewhere. The people so dread the disease that a woman just discharged from the leprosarium as cured, when on the way back to the village, was pushed by her husband over the brink of a precipice and fell to her death.

At the Istanbul and Elazig leprosariums chaulmoogra oil and methylene blue are used for treatment. Every second day the patients receive an injection of chaulmoogra oil and an intravenous injection of 1 per cent solution of methylene blue. For lepromas and ulcers a 20 to 30 per cent solution of trichloroacetic acid is used; also antiseptics like "rivanol" (2-ethoxy-6,9-diaminoacredine lactate), bismuth subgallate and a mixture of 40 per cent sulfamethylthiazole and 60 per cent urea, sometimes in the form of powder or ointment. Sulfonamide drugs have not been effective, and there have not been good results with penicillin or streptomycin. "Rubrophen" (trimethoxy-dioxy-oxotritan) has been tried, but better results have been obtained with a mild mercurous chloride lotion to which 1 per cent glycerin was added. One patient was given twelve vials of "promin" (sodium p,p'-diaminodiphenylsulfone-N,N'didextrose sulfonate), but because an import license had not been procured the treatment had to be discontinued; besides the price of this remedy makes its use prohibitive. The patients are given tonics and plenty of vitamins; their food rations are higher than those in other hospitals.

The samples of "diasone sodium" (disodium formaldehyde sulfoxylate derivative of 4,4'-diaminodiphenyl sulfone) which the Abbott laboratories forwarded to the Ministry of Health have been tried on different types of patients and have proved to be the best leprosy remedy available. A daily dose of two tablets of the drug for one hundred and twelve days was given to 3 patients suffering from lepra neurosa with severe necrosis, and for one hundred and seventy-six days to 3 patients suffering from the same manifestations. The absence of Hansen bacilli was always determined. During the treatment the patients complained of pain in the stomach and nausea but not sufficient to justify the discontinuance of the treatment. In 2 patients acute edema and erythematous pustules developed. It has been found that these untoward symptoms can be prevented if after a daily dose of two tablets of "diasone" for two months there is an interval of two weeks. The treatment with this drug did not in any way affect the urine or the hemoglobin count. In 3 patients the erythrocytes decreased 10 per cent. Some patients who in the beginning had been enthusiastic about the new remedy became despondent after two to three months and henceforth took it rather unwillingly. At the Elázig leprosarium 9 patients are at present undergoing the treatment with "diasone"; 3 patients have already improved, and it is believed that a complete cure will be effected with this drug, of which no bad effects have been observed.

If after being pronounced cured, a patient is found free of Hansen bacilli three times, with an interval of forty-five days each, he is discharged. Travel expenses are paid for by the hospital; the patient is given a certificate of health, is put on the train by a hospital attendant and returned to his family, which is informed of the arrival by telegram. The health officer of the respective district is also informed by telegram of the patient's arrival and his exact address. The discharged patients are followed up and at the slightest sign of a relapse are readmitted to the hospital. During the eight years a few readmissions have been recorded. The leprosariums are under the direction of and maintained by the Ministry of Health and Social Assistance. The specialist at the division of hygiene is in charge of all work connected with leprosy.

## BRAZIL

*(From Our Regular Correspondent)*

Rio de Janeiro, Dec. 6, 1948.

### Compulsory BCG Immunization

A federal law has been enacted about BCG immunization. This is the text of the law:

"Section I—The executive branch of the government is hereby authorized to take the necessary steps, through the National Service of Tuberculosis of the Ministry of Health, to promote in the entire national territory, whenever indicated, the BCG immunization of infants, children and adults against tuberculosis.

"Section II—The National Service of tuberculosis shall promote an intensive educational campaign on the safety and advantages of BCG immunization against tuberculosis, and for this aim shall seek the cooperation of the agencies of local government.

"Section III—Beginning two years after the enactment of this law, a certificate of BCG immunization shall be presented by all newborn infants about to be registered, children to be enrolled for school work, patients seeking hospital treatment, candidates for public services and men entering the armed forces. If this cannot be complied with, the person shall be urged to seek BCG immunization, which shall be facilitated whenever possible.

"Section IV—The executive branch of the government is also authorized to contract, through the National Service of Tuberculosis, with the Ataulpho de Paiva Foundation of Rio de Janeiro, and with other organizations with similar aims or similar technical equipment and personnel, for the preparation and furnishment of BCG immunization material, to be produced under the control of specialized technicians.

"Section V—A sum of 3 million cruzeiros [$150,000] is appropriated to cover the expenses of the services authorized by this law."

The Brazilian medical profession is strongly divided about the subject of this law, many doctors maintaining that it is not even clear whether this means compulsory immunization or not. It is also feared that the enforcement of such a law may be the cause of more difficulties for birth registration, school attendance and hospitalization, which are markedly insufficient in Brazil.

# Miscellany

## PITUITARY TUMORS

Four groups of tumors occur in the pituitary region. The one responsible for amenorrhea is a chromophil tumor; a predominance of eosinophils is found with that tumor. Amenorrhea does not develop until changes take place with a sort of dispituitarism.

Second and most common is the chromophobe adenoma, which develops much like an adenoma of the thyroid, since it develops in the anterior part of the gland which has to do with the endocrines. When the tumor becomes of sufficient size either to destroy or to invade part of the anterior lobe all the dispituitary symptoms occur. Also there is a peculiar change in the skin, which becomes thin. If the patient is a male the beard will become thin and sparse.

The third type is the basophilic adenoma (Cushing's syndrome). The odd changes which the patient goes through, include an increase in blood pressure and a striation of the abdominal skin. There is an excessive gain in weight. The patient may not have filling defects as a result of the growth because the tumors are not large. Then, too, the tumor may be associated with other endocrine gland disturbance, such as those of the adrenal. A headache can occur with all of them.

Probably most common is the glioma. As the tumor grows there is an erosion and flattening of the cella and as long as there is room for the tumor to settle into the sinus little pain is present. Once the tumor is enlarged pain situated back of the eye, between the eyes and sometimes in the transtemporal area, develops.

Fourth is the so-called craniopharyngeal pouch tumor, which originates from the stump of the pituitary gland. It may drop into the third ventricle just as well as grow downward into the sella. When it does papilledema and violent headache comparable to the ones produced by tumors of the brain occur.

QUESTION: Why do not histologically malignant brain tumors metastasize?

ANSWER: Most of these tumors of the gliomatous type are in the cortex and are at the end of the blood vessels. They represent lesions that do not come in direct contact with the large vessels except the meningiomas. The meningiomas are invariably incapsulated and they do not break off easily or throw off cells.

There are two tumors that do metastasize, the most common being the medulloblastoma, a cellular undifferentiated tumor that usually arises in the vicinity of the fourth ventricle, and these cells do break off and implant themselves on all of the surfaces of the arachnoid and down through the spinal canal. These tumors arise in the lobar area and out over the surface of the brain. These implants are carried with the cerebrospinal fluid as it is reabsorbed through the various villi. Their failure to metastasize like ordinary carcinomas I presume is due to the fact that they do not grow into blood vessels as these other tumors do.—Answers by Dr. Alfred W. Adson, Rochester, Minn., to questions at the Second Round Table Luncheon, Annual Cancer Conference, Denver, July 15, 1948, edited from material published in *Rocky Mountain Medical Journal,* November 1948, page 1015.

## VENOUS THROMBOSIS AND PULMONARY EMBOLISM

Modern prophylactic methods can materially reduce the incidence of postoperative thromboembolism. This decreased incidence is due primarily to the use of proximal vein ligation and/or anticoagulants, but recent improvements in pre- and postoperative care have also played a definite role. Allen and associates have been the foremost advocates of vein interruption. Heparin has been used most exensively in Sweden and "dicumarol" has been favored in this country by Barker and others. Each of these methods, or combination of methods, has its firm advocates, but experience has shown that any one of the three can be effective when properly used. . . .

These methods present serious problems. Routine prophylactic bilateral vein ligation entails an added operating room procedure. Many surgeons view with alarm large scale normal vein ligation, and there is reason to believe that edema of the legs and other complications occur in some individuals as a result. Routine prophylactic postoperative anticoagulants require very careful laboratory control if they are to be both safe and effective. This is especially true with "dicumarol," as the dosage must be individualized for each patient and plasma prothrombin activity must be determined daily during the treatment. This is a major technical and economic problem for the well equipped hospital and an insurmountable problem in the hospital with inadequate laboratory facilities. If the problem of thrombosis is approached statistically, only about 6 per cent of postoperative patients require prophylaxis, but there has been no proven method by which this relatively small group can be distinguished from those patients who will not have thrombosis. Our recent experience indicates that the prothrombin activity of the plasma in the postoperative period may serve as a helpful test in predicting those patients who are liable to thromboembolic complications.—Rachel S. Sandrock, M.C., and Earle B. Mahoney, M.D., Prothrombin Activity, *Annals of Surgery,* September 1948.

# Medical Motion Pictures

## FILM REVIEWS

**Cancer: The Problem of Early Diagnosis.** 16 mm., color, sound, 1,200 feet (1 reel), showing time thirty minutes. Sponsored by the American Cancer Society and the National Cancer Institute of the Public Health Service. Produced in 1949 and procurable on purchase ($150) from Audio Productions, Inc., 630 Ninth Avenue, New York 19, or on loan from State Cancer Societies, State Health Departments and regional depots of Association Films, New York, Dallas, Chicago and San Francisco.

This film was designed as the first of a series of motion pictures to emphasize for the general practitioner of medicine the importance of early suspicion, accurate diagnosis and effective treatment in the handling of cases of cancer. Opening with a short sequence showing Dr. Billroth performing the first gastric resection for cancer of the stomach (1881), the film moves rapidly to the modern attack on gastric carcinoma. In succession each of the most deadly forms of cancer—for example, that of the stomach, breast, large bowel, cervix and lung—is discussed. In each site the means of early suspicion, accurate diagnosis and effective treatment are shown and the mortality with late diagnosis graphically contrasted with the mortality with early diagnosis. The film should be of great interest and value not only as a means of reemphasizing important facts about cancer for hospital staffs and general practitioners but also for introducing the subject and giving an over-all view of the cancer problem to medical students. It is hoped that the succeeding films in the series will be as well planned, well organized and carefully produced and that there will not be a long delay in their release. The photography, animation and narration are excellent.

**Families First.** 16 mm., black and white, sound, 600 feet (1 reel), showing time seventeen minutes. Prepared by The New York State Youth Commission. Produced in 1948 by RKO Pathe, Inc. Procurable on loan within the State of New York from Supervisor, Film Library, New York State Department of Commerce, 40 Howard Street, Albany 7, and procurable on purchase from New York State Youth Commission, 30 Lodge Street, Albany, N. Y.

This motion picture is a dramatic portrayal of the relation of the home to the formation of character and behavior patterns in children, and the efforts of community organization to meet the needs of the family. A series of episodes in the everyday life of two contrasting families, one of the sharing and the other the nonsharing type, reveals ways in which the essential needs of children can be supplied. A child grows up only once and grows as the parents shape him. The film clearly depicts that children without a sense of security have no sense of responsibility. It illustrates that children seek to satisfy four fundamental needs, security, affection, recognition and new experiences, and that inadequate home training and friction between parents in front of their children may be underlying causes for juvenile delinquency. Throughout the film, emphasis is placed on environment alone rather than individual differences that contribute to the adjustment of the child.

The final purpose of the film is to be of assistance in developing children into healthy, happy and law-abiding citizens, and it can be effectively used with urban adult groups, such as parent-teachers' associations, civic and service clubs, high school and college students and juvenile delinquency officers. It lends itself well to a discussion of this most important subject. Technically, the film is well done.

# Medical Examinations and Licensure

## COMING EXAMINATIONS AND MEETINGS

### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various Centers, Feb., June and Sept. 1949. *Part II.* April 1949. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2, Pa.

### EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, INC.: *Written.* July 15. Various locations. Final date for filing application is April 15. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Avenue, New York 27.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Various Centers, Feb. 17. *Oral.* New York City, April 1-3. Sec., Dr. George M. Lewis, 66 East 60th Street, New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* San Francisco, Feb. 8-10, 1949. New York City, March 23-25. Philadelphia, June 1-3. *Written.* Oct. 17, 1949. Final date for filing application is May 1. Asst. Sec.-Treas., Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC.: *Oral.* Chicago, May 8-14. Final date for filing application is April 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Written.* Jan. 14. *Oral.* San Francisco, March 21-24; New York, June 11-15; St. Louis, Oct. 15-19; Boston, Dec. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPEDIC SURGERY. *Part I.* Various Centers, April and May. Sec., Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: Boston, April. Final date for filing application is March 1. Sec., Dr. Robert A. Moore, 507 S. Euclid Ave., St. Louis 10, Mo.

AMERICAN BOARD OF PEDIATRICS: *Oral.* St. Louis, Feb. 18-20. Baltimore, May 7-9. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE: Atlantic City, June 4-5. Final date for filing application is March 15. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: *Oral.* May. Final date for filing application is Feb. 15. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Written.* Various Centers, March 1949. Sec., Dr. J S. Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: Feb. 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

### BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ALASKA:* Juneau, March 1. Sec.-Treas., Dr. W. M. Whitehead, Box 140, Juneau.

ARKANSAS:* Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Examination,* Los Angeles, Feb. 28-March 3. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

CONNECTICUT:* Hartford, March 8-9. Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

DISTRICT OF COLUMBIA:* *Reciprocity,* Washington, March 14. Sec., Dr. George C. Ruhland, 4130 Municipal Building, Washington.

FLORIDA:* *Examination,* Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

GEORGIA: *Examination.* June, Atlanta and Augusta. *Reciprocity.* Atlanta, June Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

GUAM: *Endorsement.* Agana, Last Friday of each month Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam, % F.P.O. San Francisco, Calif.

INDIANA: *Examination.* Indianapolis, June. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

IOWA: *Examination.* Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KENTUCKY: *Examination.* Louisville, June 15-17. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

MAINE: Portland, March 8-9 Sec., Dr. Adam P. Leighton, 192 State Street, Portland.

MARYLAND: *Examination,* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore.

MASSACHUSETTS: *Examination.* Boston, March 8-11. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

MISSISSIPPI: Jackson, June. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

MONTANA: Helena, April 4-6. Sec., Dr. O. G. Klein, First National Bank Building, Helena.

NEBRASKA:* *Examination.* Omaha, June. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

NEVADA: Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

NEW HAMPSHIRE: Concord, March 10. Sec., Board of Registration in Medicine, Dr. John S. Wheeler, 107 State House, Concord.

NEW JERSEY: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

NEW MEXICO: Santa Fe, April 11-12. Sec., Dr. V. E. Berchtold, 141 Palace Ave., Santa Fe.

NEW YORK: *Examination.* Various Centers, Feb. 1-4. Sec., Dr. J. L. Lochner, Jr., 23 S. Pearl St., Education Bldg., Albany.

OHIO: *Endorsement.* Columbus, April 5. *Written.* Columbus, June. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

PUERTO RICO: *Examination.* Santurce, March 1. Sec., Mr. Luis Cueto Coll, Box 3717, Santurce.

SOUTH CAROLINA: Columbia, June 27-29. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

TEXAS: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

UTAH: *Examination.* Salt Lake City, July. Sec., Dept. of Registration, Miss Rena B Loomis, 324 State Capitol Bldg., Salt Lake City.

VERMONT: *Examination.* Burlington, Feb. 3-5. Sec., Dr. F. J. Lawliss, Richford

VIRGINIA: *Examination.* Richmond, June 17-18. *Reciprocity.* Richmond, June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.

WYOMING: *Examination.* Cheyenne, Feb. 7. Sec., Dr. Franklin D. Yoder, Cheyenne.

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* Basic Science Certificate required.

### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: Juneau, Feb. 21-26. Sec.-Treas., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: *Examination.* Tucson, March 15. Sec., Dr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

COLORADO: *Examination.* Denver, Mar. 2-3. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

CONNECTICUT: New Haven, Feb. 12. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

DISTRICT OF COLUMBIA: *Examination.* Washington, April 18-19. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., East, Washington.

FLORIDA: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

MINNESOTA: *Examination.* April, June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

OKLAHOMA: Spring of 1949. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: Portland, March 5 and June 18. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

RHODE ISLAND: *Examination.* Providence, Feb. 9. Chief, Mr. Thomas B Casey, 366 State Office Building, Providence.

SOUTH DAKOTA: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.

TENNESSEE: Memphis, March 21-22. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

WISCONSIN: Madison, April 2.. Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College, Ripon.

# Bureau of Legal Medicine and Legislation

## MEDICOLEGAL ABSTRACTS

**Charitable Hospitals: Liability for Negligence.**—This was an action for the benefit of Frank Erwin, deceased, for damages for malpractice and negligence of the defendant hospital. From an order dismissing the hospital, the plaintiff appealed to the Supreme Court of Michigan.

It is an admitted fact, said the Supreme Court, that the defendant hospital was organized for eleemosynary and charitable purposes and is being operated in accordance with those stated purposes. The doctrine of immunity of charitable hospitals from tort liability, held the Supreme Court, is firmly implanted in the law of Michigan, and we are not convinced that this doctrine should be changed by the court. Accordingly the judgment in favor of the defendant hospital was affirmed.—*In re Erwin's Estate, 34 N. W. (2d) 480 (Mich., 1948).*

**Drunkenness: Admissibility in Evidence of Chemical Tests for Intoxication.**—The defendant was found guilty of driving a motor vehicle while under the influence of intoxicating liquor. From an order denying his motion for a new trial, he appealed to the district court of appeal, fourth district, California.

One of the witnesses who testified during the trial was the physician who treated the defendant and the other injured persons the night of the accident. During the course of this treatment the physician, at the suggestion of the highway patrolman, took a blood sample from the defendant. The physician testified that he "did not believe" that he discussed the taking of the blood sample with the defendant and he was rather doubtful whether the defendant "knew anything much that went on . . . although he did answer questions" and responded "by doing as he was asked to do." The blood specimen taken was delivered to a Dr. Neal at 8:30 the next morning for analysis of the alcoholic content. After showing his qualifications in that field and explaining the tests actually employed in making the blood analysis, Dr. Neal, over objections, was permitted to state that he found the alcoholic content to be 3.5 mg. of alcohol per cubic centimeter; that that means "that the amount of alcohol in the blood has reached that measurement, and that is a measurement something like a weight or a volume like teaspoons or tablespoons of alcohol"; that "that much alcohol indicates a definite degree of intoxication. . . . Using a scale beginning with 0.5 mg., it is questionable whether there is any effect from the alcohol in the blood. At 1 mg. there is the least perceptible effect from the alcohol. At the level of 2 mg. the amount of alcohol is sufficient definitely to interfere with a person's ability to do skilled acts. At 3 mg. a state of distinct intoxication or distinct inability to perform ordinary acts is definite. At 4 mg. a person is dead drunk. He loses consciousness as a rule"; that "a person with a 3.5 mg. result would be definitely under the influence of intoxicating liquor . . ." and "his ability to drive an automobile safely on the highway" would be impaired; that "it would not be safe for him, a man with a 3.5 result, to be on the highway driving an automobile"; that he ran this test twice to "prevent experimental errors or to prevent an error in performance . . . and in both tests it came out 3.5."

It was the defendant's contention that this line of testimony should not have been admitted in evidence during the trial on the ground that the sample was taken without his consent or knowledge and while he was suffering from shock and cerebral concussion, and was therefore in violation of Article 1, section 13 of the state constitution and the fifth amendment to the federal constitution. In support of this contention, he cited a number of cases previously decided by the California courts.

Cases involving the admissibility of evidence as to scientific analytic tests for intoxication, said the court of appeal, based on alcoholic content of the specimen of some bodily fluid, such as blood or urine, or of the breath, are correlated in 127 A.L.R., p. 1513. It would appear that on the laying of a proper foundation such evidence is admissible where there is no other evidence of compulsion or entrapment; but where the accused is compelled to submit to such tests against his will, some states hold that it violates his constitutional right in that he may not "be compelled to give testimony against himself" and on proper objections the results of the test are inadmissible. Continuing, the court of appeal said that the privilege against self incrimination, however, does not preclude the introduction of physical disclosures a defendant is forced to make or the results of tests to which he has involuntarily submitted; that the privilege only protects the person from any forced disclosures made by him, whether oral or written; and that it is limited to the protection against testimonial compulsion. In *State v. Cram,* 176 Or. 577, 160 P. (2d) 283, where the facts were similar and the same question was presented, it was said that the admission of testimony concerning the alcoholic contents of a blood sample taken from an automobile driver following an accident and at a time when he was unconscious and under arrest and where there was a subsequent prosecution for manslaughter based on death as a result of such accident, was not a violation of defendant's constitutional privilege against self incrimination. In the circumstances here related, the court of appeal concluded, it cannot be said that the trial court erred in overruling the defendant's objection to the admissibility of such evidence. This and other contentions of the defendant being overruled, the conviction by the trial court was sustained.—*People v. Tucker, 198 P. (2d) 941 (Calif., 1948).*

**Malpractice: Liability of Physician for Morphine Addiction of Patient Following Administration by Physician.**—The plaintiff sued for damages alleged to have resulted from the malpractice of the defendant physician. The jury found in favor of the plaintiff, but the trial judge entered a verdict for the defendant. Accordingly the plaintiff appealed to the Supreme Judicial Court of Massachusetts.

On Dec. 25, 1939, the plaintiff was suffering from nausea, but the defendant, without any complaint of pain by the plaintiff and without any physical examination or questions as to a medical history, gave the plaintiff a hypodermic injection of morphine, which was repeated twice that day. Early in 1940 the defendant gave her another injection in similar circumstances, and in 1941 he gave her occasional injections, until by July she was receiving about two injections a week; by the end of August she was receiving an injection every day, by September twice a day and by October three times or more a day, until the plaintiff's husband ordered the defendant from the house and threatened to "clean him up." Thereafter the plaintiff became "jumpy and nervous," and two days later, "after telephoning about every doctor in Adams for morphine," she experienced a complete blackout and was taken to a hospital suffering from morphine addiction described as "one quarter the way along to confirmed addiction." The plaintiff testified that she had never stated that she had pain until after the defendant had ceased giving her the injections. In 1944 she had her gallbladder removed. She said that a stone was found and that after the operation the nausea she had had since 1939 ceased. There was medical evidence that the plaintiff's nausea was caused by her gallbladder trouble and that it was possible to have gallbladder trouble with nausea but without pain. Finally, there was expert evidence that it was not proper medical practice to administer morphine to a patient who complained of nausea but not of pain, or over a period of time when there was no pain involved or to continue giving morphine in the absence of a diagnosis of a condition that could not be cured.

On the basis of this evidence, said the Supreme Judicial Court, the jury could have found that the defendant, in administering morphine to the plaintiff over a long period of time with constantly increasing frequency until she became to a considerable extent addicted to the drug, failed to observe the standard of skill and care required of him as a physician. Continuing, the court said that it could not be ruled as a matter of law that the plaintiff was guilty of contributory negligence or that she assumed the risk of addiction. It is true, said the court, that the plaintiff knew she was getting the injections and that eventually she sought them, and she testified that by about the last of July she was "beginning to get a little sneaky—starting to lie" and did not always tell the defendant the truth about her condition. She also testified that she did not know what the defendant was giving her, although in July she had a "suspicion," and she knew it was something that was relieving her and making her feel "pretty high." The jury, said the court, could have found that she knew she was getting morphine, but they were not obliged so to find. Much less were they obliged to find that she knew at what point addiction would begin, or that at any time before addiction became a fact she had ceased to rely on the superior knowledge of the defendant as to the amount of the drug that could safely be taken over a period of time.

Furthermore, the court continued, the defendant was not aided by the provisions of the general law that "a physician may personally administer any narcotic drug at such time and under such circumstances as he, in good faith and in the legitimate practice of medicine, believes to be necessary for the alleviation of pain and suffering or for the treatment or alleviation of disease." This section, said the court, was intended merely to make it plain that physicians personally administering narcotics in good faith and in legitimate practice should be exempt from a series of penal provisions relative to the sale and distribution of narcotic drugs. It was not intended to relieve them from civil liability under principles of law applicable generally not only to physicians in all other matters relating to the practice of their profession but also to all those who hold themselves out as possessing peculiar skill and competence in other professions and trades. The Supreme Judicial Court therefore held that the judgment should be for the plaintiff but added that this decision rests on evidence of improper and unprofessional conduct on the part of the defendant leading to addiction in the plaintiff and that nothing contained herein need cause anxiety to an honest physician who administers narcotics to a patient in accordance with the prevailing standards of medical practice. Accordingly the verdict for the defendant was set aside and the verdict of the jury in favor of the plaintiff ordered to stand.—*King v. Solomon, 81 N. E. (2d) 838 (Mass., 1948).*

# Current Medical Literature

## AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

### American Heart Journal, St. Louis

36:321-480 (Sept.) 1948

*Analysis of Malformations of Heart Amenable to Blalock-Taussig Operation. Helen B. Taussig.—p. 321.

Coronary Artery Disease in Men Eighteen to Thirty-Nine Years of Age: Report of Eight Hundred Sixty-Six Cases, Four Hundred Fifty with Necropsy Examinations. W. M. Yater, A. H. Traum, W. G. Brown and others.—p. 334.

*Stress and Electrocardiogram in Induced Hypoxemia Test for Coronary Insufficiency. H. B. Burchell, R. D. Pruitt and Arlie R. Barnes. —p. 373.

Myocarditis Associated with Acute and Subacute Glomerulonephritis. I. Gore and O. Saphir.—p. 390.

*Aneurysm of Coronary Arteries. D. H. Scott.—p. 403.

Atrial Infarction with Diagnostic Electrocardiographic Findings. H. K. Hellerstein.—p. 422.

Septal Infarction with Complete Heart Block and Intermittent Anomalous Atrioventricular Excitation (Wolff-Parkinson-White Syndrome): Histologic Demonstration of Right Lateral Bundle. H. D. Levine and J. C. Burge Jr.—p. 431.

Congenital Tricuspid Atresia Associated with Interauricular and Interventricular Septal Defects. J. B. Miale, A. L. Millard, T. J. Beno and G. S. Custer.—p. 438.

Gangrene of Lower Extremities in Infants: Report of Two Cases. I. H. Richter and I. A. Tainsky.—p. 443.

Recurrent Spontaneous Mediastinal Emphysema Simulating Myocardial Infarction. P. C. Pellegrino and E. N. Silber.—p. 447.

**Malformations of Heart Amenable to Blalock-Taussig Operation.**—Taussig reports on 600 patients of all ages with all types of malformations of the heart for whom the clinical diagnosis was lack of adequate pulmonary blood flow, and on whom the Blalock-Taussig operation was performed. The operation is of benefit to those patients in whom the structure of the heart is such that it is able to adjust to the altered circulation. This is the case in patients with the tetralogy of Fallot who have been greatly improved and who have an equally good chance of maintaining this improvement. The operation was also performed on 47 with atypical malformations of the heart with pulmonary stenosis and atresia. Improved by the operation were those with a cardiac contour similar to that of the tetralogy of Fallot with left axis deviation, those with partial rotation of the heart on its axis, possibly those with pulmonary stenosis and an auricular septal defect in the absence of a ventricular septal defect and a few with unusual arrhythmia. The cardiac reserve and the ability of the heart to adjust to the altered circulation was best demonstrated by the postoperative course of 220 patients who were discharged improved and followed for a period of more than two years. Less than 5 per cent of these patients have shown progressive cardiac enlargement or died of cardiac failure. Thirty per cent have shown no increase in heart size. Thirty per cent have shown increase in heart size during the first three weeks after operation and then have adjusted to the load, and 30 per cent have shown cardiac enlargement between the time of discharge and a six month check-up and thereafter have shown no further increase in heart size. The results from the use of the subclavian artery, as estimated by the oxygen saturation of the arterial blood, the red blood cell count and the hemoglobin level, have been as beneficial as when the innominate artery has been used for the anastomosis, and this former group of patients has shown less increase in the size of the heart.

**Stress and Electrocardiogram in Induced Hypoxemia Test.**—Burchell and his co-workers carried out seven hundred and thirty induced hypoxemia tests for the diagnosis of coronary sclerosis after the method of Levy, the patient breathing a mixture of 10 per cent oxygen in nitrogen. In selected cases the test has been of great assistance in the diagnosis of coronary insufficiency. When coronary sclerosis of clinical magnitude is present, one may expect a positive result in about 50 per cent of cases. Two cases are cited to indicate that a similarly severe degree of coronary sclerosis may be present in patients with a negative or positive reaction to the test. The conclusion is drawn that, in many cases, coronary vasoconstriction is an important factor in determining whether an area of injury develops within the myocardium. In practically all patients increased ventilation occurs, and apparently there is a rough correlation between the extent of increase in ventilation and the degree of arterial hemoglobin saturation. The degree of arterial hemoglobin saturation is not the main factor which determines whether a positive or negative reaction to the test occurs in persons with coronary sclerosis. A physiologically unsteady state is present throughout the whole period of the induced hypoxemia, and comparisons cannot be justly made to determinations wherein equilibrium has been established. The brief duration of the test is a safety factor. The period of exposure to low oxygen tension may be shortened from twenty minutes to fifteen without significantly reducing the percentage of positive results. Patients with moderate hypertension and cardiac enlargement apparently give a positive reaction to the test only if coronary insufficiency related to coronary sclerosis is also present. The electrocardiographic changes follow a pattern which is consistent with, and supportive of, the concepts of the dipole theory as they are related to a myocardial injury wherein the more seriously affected cells lie in the endocardial layer. The disturbed myocardial state giving rise to the electrocardiographic changes during the test may exist independently of the physiologic stimulus for pain.

**Aneurysm of the Coronary Arteries.**—Scott suggests that aneurysms of the coronary arteries be considered as localized or diffuse and that the localized be further classified into four main groups: congenital, mycotic-embolic, syphilitic and arteriosclerotic. All diffuse aneurysms of the coronary arteries appear to be on a congenital basis. A total of 47 localized aneurysms have been reported since the first report in 1812; they may be divided in 15 congenital, 12 mycotic-embolic, 6 syphilitic, 6 arteriosclerotic, 4 of other types and 4 unclassified. The common complications of the condition are rupture, thrombosis and associated myocardial disease: When a localized aneurysm occurs, the left coronary artery is the more frequently involved and the condition is usually single. In a diffuse aneurysm, the right coronary artery is more commonly affected. There are no pathognomonic clinical findings. Men are much more frequently affected than women. One case of coronary aneurysm in a man aged 84 is reported; there were no cardiac complaints during life, and at autopsy there was observed an anomalous coronary circulation with multiple aneurysms, the largest of which measured 10 by 8.0 by 8.0 cm. The case is of particular interest as an illustration of the extent to which an abnormality can be present in the heart without causing symptoms.

### American Journal of Ophthalmology, Cincinnati

**31:***1053-1192* (Sept.) *1948*

Optic Neuropathies: Simplified Classification and Outline for Etiologic Diagnosis. Estelle Doheny Eye Foundation Lecture. A. C. Woods. —p. 1053.

Use of Bacitracin in Ocular Infections: Part I. Tolerance and Permeability in Rabbit Eye. J. G. Bellows and C. J. Farmer.—p. 1070.

Surgery of Congenital Cataracts. F. C. Cordes.—p. 1073.

Prevention and Management of Complications of Cataract Extraction. J. S. Guyton.—p. 1085.

Central Control of Intraocular Pressure by Active Principles. E. Schmerl and B. Steinberg.—p. 1097.

Use of Placental Extract in Treatment of Herpetic Keratitis and Superficial Punctate Keratitis. B. Kronenberg.—p. 1101.

End Results in Retinal Detachment. L. J. Croll and M. Croll.—p. 1107.

Functional Organization of Third-Nerve Nucleus in Cat. P. C. Danis. —p. 1122.

Essential Progressive Atrophy of Iris. M. A. Lasky.—p. 1131.

Senile Macular Lesions. R. I. Lloyd.—p. 1135.

Barriers and Aids to Fusion. Marianne Eyles.—p. 1147.

Optic Atrophy in Diabetes Mellitus: Report of Three Cases in One Family. J. R. Stansbury.—p. 1153.

### American Journal of Psychiatry, New York

**105:**81-160 (Aug.) 1948

Selection of Psychiatric Cases for Prefrontal Lobotomy. L. B. Kalinowsky and J. E. Scarff.—p. 81.
Evaluation of Leukotomy Results. F. Reitman.—p. 86.
Psychiatry in The General Hospital. B. L. Keyes, R. S. Bookhammer and A. J. Kaplan.—p. 90.
Presenile Psychosis: Report of Two Cases with Brain Biopsy Studies. P. Polatin, P. H. Hoch, W. A. Horwitz and L. Roizin.—p. 96.
Early Senile Dementia in Mongoloid Idiocy. G. A. Jervis.—p. 102.
Psychiatric Observations on Induced Vitamin B Complex Deficiency in Psychotic Patients. O. Kreisler, E. Liebert and M. K. Horwitt.—p. 107.
Graduate Residency Training in Psychoanalytic Medicine. S. Rado.—p. 111.
Mutual Dependency of Professional Training in Psychology and Psychiatry. J. G. Miller.—p. 116.
Proposed Classification of Psychotic Behavior Reactions. Phyllis Wittman and W. Sheldon.—p. 124.

### *American Journal of Surgery, New York*

**76:**233-348 (Sept.) 1948

*Lumbar Herniations of Nucleus Pulposus: Analysis of 196 Operated Cases. E. S. Gurdjian and J. E. Webster.—p. 235.
Fads and Fancy in Treatment of Peptic Ulcer. F. Cunha.—p. 244.
*New Pregnancy Test: Use of Three Injections of Estrone in Oil. S. S. Garrett.—p. 261.
Management of Anoxia During Pentothal Anesthesia. B. Etsten and H. E. Himwich.—p. 268.
The Talcum Powder Evil. M. G. Seelig.—p. 272.
Scalenus Anticus Syndrome Treated by Surgery and Skeletal Traction. A. F. De Palma.—p. 274.
Modified Operation for Carcinoma of Rectum with Preservation of Sphincter. L. S. Altman and B. Kogut.—p. 281.
Errors and Evils of Episiotomy. C. W. Barrett.—p. 284.
Marsupialization: Surgical Procedure for Eradication of Pilonidal Cyst and Sinuses. S. J. Freund and M. D. Redding.—p. 286.
Insertion of Smith-Petersen Pin. M. L. Quinn.—p. 289.
Treatment of Head Injuries and Their Sequelae. W. P. E. Berwald.—p. 298.
Acute Intussusception in Infancy and Childhood. C. W. McLaughlin Jr.—p. 306.
Duo Liquid Adhesive: Its Uses in Neurosurgery. R. B. Cloward.—p. 313.

**Operation for Herniations of Nucleus Pulposus.**—Gurdjian and Webster review observations on 196 patients who had pain low in the back with sciatic radiation and who were operated on during a six year period. In 28 patients no disk protrusion was found. Among these 28 there were 12 with varicosities of the outgoing root. In 7 patients it was thought that there was root compression by contiguous tissue and in 8 others the relationships appeared normal. "Pantopaque" (ethyl iodophenylundecylate) or iodized oil U.S.P. myelography was carried out in 31 patients, but only in 21 did the myelographic and operative findings correspond. Every patient had roentgen studies of the spine, and in 27 significant coexisting spinal abnormalities were noted. In 121 patients operation consisted of hemilaminectomy and exposure of the fourth and fifth interspaces on the affected side. Bilateral laminectomy was done in 23 cases, and combined hemilaminectomy at the fourth and fifth interspaces on the affected side with fusion of the lumbosacral spine was carried out in 52 patients. The fusion usually consisted of a tibial graft, cancellous bone and osteoperiosteal graft. The nonlaminectomized side was mainly used for the graft. Most of the patients with fusion were ambulatory in two weeks. Results obtained by operation in 80 patients were excellent or good in more than two thirds of the patients, fair in another 20 per cent and poor in 12 per cent. The authors conclude that in most cases operation may be deferred in the first attack of pain low in the back with sciatica, but that massive ruptured disk with severe neurologic defect deserves immediate operative treatment.

**New Pregnancy Test.**—The new pregnancy test which Garrett has devised was suggested by results he obtained in the treatment of amenorrhea with estrone. The test has been used with slightly varying technic on some 250 patients without a single incorrect result. It consists of an intramuscular injection of three doses of estrone in oil, 1 mg. each, over a period of five days in certain selected patients. Failure to menstruate within twenty-four hours after the last injection is interpreted as a positive test for pregnancy. The test is inexpensive and simple to perform in the office without the use of animals or the aid of an outside laboratory. The greatest shortcoming of this test is that it is not applicable to a patient who is bleeding. As the test has been used on only 4 women approaching the menopause caution should be used in the interpretation of results in such patients until more data are available.

### American Review of Tuberculosis, New York

**58:**139-254 (Aug.) 1948

*Treatment of Tuberculosis with Streptomycin: Response of Certain Subacute and Chronic Types. K. S. Howlett Jr. and J. B. O'Connor.—p. 139.
Thoracoplasty Operations Under Local and Regional Anesthesia. M. Weinstein.—p. 173.
*Cavernostomy. E. E. Rockey, S. A. Thompson and I. Shiner.—p. 190.
Significance of Pulmonary Tuberculosis when Associated with Bronchogenic Carcinoma. G. W. Drymalski and H. C. Sweany.—p. 203.
Bronchial Tuberculosis Simulating Foreign Body in Child One Year of Age: Report of Case. P. P. Vinson.—p. 207.
Effect of Salicylic Acid on Growth, Morphology and Virulence of M. Tuberculosis. R. J. Fitzgerald and F. Bernheim.—p. 210.
Submerged Suspended Liquid Culture of M. Tuberculosis and Other Acid-Fast Bacilli Under Influence of Physical and Chemical Factors. H. J. Corper, M. L. Cohn and W. H. Frey.—p. 215.
Effect of Phenylhydrazine in Experimental Tuberculosis. H. J. Corper and M. L. Cohn.—p. 230.
Tuberculosis in the Feebleminded. P. A. Theodos.—p. 237.

**Streptomycin in Chronic Tuberculosis.**—The two types which furnish the principal material for this report are: (1) chronically unstable tuberculosis of limited extent, which has continued to be active and to produce positive sputum in spite of prolonged treatment by conventional methods; the chronically unstable course of disease in these patients cannot be adequately explained on the basis of persistent visible cavity or bronchoscopically visible endobronchial tuberculosis alone; this group of patients has been designated as "grumblers"; (2) subacute and chronic disseminated nodular pulmonary tuberculosis, which has failed to respond to treatment by bed rest. Streptomycin has produced temporary improvement in most patients in the group of "grumblers." The principal evidence of this was the reduction or elimination of tubercle bacilli in sputum and gastric contents. Response has not been uniform, and relapses have already been observed in a small group of patients. Response of subacute and chronic disseminated nodular tuberculosis to streptomycin appears to be unequivocal.

**Cavernostomy.**—Cavernostomy according to Rockey and his associates is open drainage of a tuberculous cavity, which attacks the focus of the infection itself and leaves this part of the lung exposed to direct handling. In this method the tuberculous cavity heals by sloughing its caseous wall, which is removed with the dressing. The procedure is not new, but it has been modified by many surgeons. The authors perform this operation in one or two stages. If the overlying lung tissue is atelectatic and the pleural layers are fused, the operation can be performed in one stage, as was done in 10 of the 22 cases in which the authors performed cavernostomy. If the pleural layers are not adherent, the wound is packed with washed iodoform gauze for one week, after which time the cavity is opened at a second stage operation, as was done in 12 of the series. The cavity should be localized with the help of posteroanterior and lateral roentgenograms, as well as fluoroscopic examination in the same position in which the patient is to be placed on the operating table. Tomograms are also helpful in the localization of the lesion. The overlying skin area can be marked with intradermal injection of methylene blue or by other means. The overlying ribs are removed and the cavity is unroofed as widely as possible. The approach may be anterior, posterior or lateral, but should be wherever the cavity is nearest to the chest wall. There is a striking difference in the result of the cases with bilateral active disease as compared to the ones with active disease limited to the operated side. Ten of the patients had active disease in both lungs; 6 are dead. Of the 4 living patients, only one is well in the sense that the pulmonary disease is controlled. In the 12 cases with unilateral active disease, only 4 are dead. Of the 8 living patients, 4 are well with the disease controlled, wounds clean or healed, and no tubercle bacilli demonstrable in the sputum. Four are clinically improved with the pulmonary disease probably controlled, and tubercle bacilli are discharged in the sputum only occasionally. Thus 12 of 22 tuberculous patients in whom the prognosis seemed hopeless are alive and 5 are well. Another 5 patients are clinically improved, but 2 of these probably will not get well. However, even in these 2, life has been extended and symptoms have cleared to a great extent. The indications for cavernostomy in these 22 patients were: (1) bilateral, far advanced disease with controlled contralateral side and one or more large cavities present on the active side; (2) unilateral disease presenting the same type of disease on the active side as noted, for which more extensive surgical treatment was contraindicated because of a low respiratory capacity; (3) existence of a residual cavity under a thoracoplasty where revision of the thoracoplasty or excisional surgery was contraindicated; (4) bilateral, far advanced disease with the disease active on both sides and one or more cavities present on the operative side.

## Bulletin of the Los Angeles Neurological Society

**13**:129-180 (Sept.) 1948

*Neurological Manifestations of Lupus Erythematosus and Periarteritis Nodosa: Report of Ten Cases. R. P. Sedgwick and K. O. Von Hagen.—p. 129.
Ancestry of Neuropathology. Sir Robert Carswell, Dean of the English Atlas-Makers. C. B. Courville.—p. 143.
Bitemporal Hemianopia and Apparent Fracture of Posterior Clinoids Resulting from Severe Cranial Injury: Review of Literature and Report of Case. J. S. Mense.—p. 165.
Treatment of Tuberculous Meningitis with Streptomycin: Report of Case. H. M. Cuneo.—p. 171.
*Birth Primacy and Idiopathic Epilepsy. J. M. Nielsen and F. O. Butler.—p. 176.

**Neurologic Manifestations of Lupus Erythematosus and Periarteritis Nodosa.**—According to Sedgwick and Von Hagen lupus erythematosus and periarteritis nodosa are members of a poorly understood group known as the "collagen diseases." These diseases involve essentially the dispersed connective tissues (hence they are "system diseases"), and for this reason any organ in the body can be affected. Since the nervous system is not exempt, the presenting symptoms may be of a neurologic nature. The case records of all Los Angeles County Hospital patients in the past ten years who were suspected of having had either disease were examined by the authors to determine whether any consistent neurologic pattern could be established as an aid to diagnosis. They say that all of the nervous system lesions of each disease can be explained (*a*) directly by focal vascular disease resulting in occlusion of hemorrhage and (*b*) indirectly by reason of renal involvement resulting in hypertension and/or azotemia, or by hemorrhage from thrombopenia. Five cases of lupus erythematosus with involvement of the nervous system are presented: The first showed toxic psychosis and meningeal reaction; the second neuronitis including albuminocytologic dissociation in the spinal fluid; the third focal vascular central nervous system lesions; the fourth cerebral hemorrhage due to thrombopenia, and the fifth Sydenham's chorea followed shortly by lupus erythematosus and a toxic psychosis. Five cases of periarteritis nodosa with involvement of the nervous system are presented: One of these presented a picture of a true polyneuritis presumably due to generalized mononeuritis; 2 others mononeuritis multiplex; a fourth focal cerebral vascular lesions followed by mononeuritis multiplex, and the last occlusion of retinal artery, retinal hemorrhage and probable multiple cerebral thrombosis. Because of their disseminated pathologic changes no consistent neurologic syndrome can yet be defined for either disease. Lupus erythematosus manifests itself neurologically chiefly by central nervous system syndromes, while periarteritis nodosa chiefly affects various peripheral nerves.

**Birth Primacy and Idiopathic Epilepsy.**—Nielsen and Butler say that in a previous study of birth sequence as related to etiology of "idiopathic" epilepsy slightly over 100 cases were reported from private practice in which it was shown that about 60 per cent of the patients were firstborn. When a group of 992 epilepsy records became available in a home for feebleminded, a further investigation of this problem was undertaken in order to determine whether birth and birth trauma played a role in the causation of epilepsy. After exclusion of all cases of postnatal causation and those with deficient data there remained 780 for analysis. There were 279 firstborn and 501 of subsequent births. The incidence of known birth trauma was essentially the same in firstborn and others. On the other hand, of all epilepsy in the group 35.8 per cent occurred in firstborn children. As there was an average of 4.2 children per family and as the remaining 64.2 per cent of cases of epilepsy must be distributed among the remaining 3.2 siblings, the average per sibling of those subsequently born is 20 per cent. The ratio of 35.8 to 20 gives 1.79 to 1. The chances of a firstborn child's having epilepsy is therefore 1.79 or little short of twice that for a sibling (of subsequent birth) in this group.

## Iowa State Medical Society Journal, Des Moines

**38**:399-434 (Sept.) 1948

Treatment of Carcinoma of Cervix. R. S. Cron.—p. 399.
Poliomyelitis in Children: A Clinical Study. C. K. Kobayashi and J. L. Kehoe.—p. 402.
Early Recognition and Treatment of Some Hip Joint Osteochondral Deformities. J. W. Graham.—p. 407.
Some Problems in Refraction. L. F. Steffens.—p. 410.
Contact Lenses. P. J. Leinfelder.—p. 413.

## Journal of Clin. Endocrinology, Springfield, Ill.

**8**:637-704 (Aug.) 1948

Page Out of History of Hyperparathyroidism. F. Albright.—p. 637.
Death, Probably Due to Potassium Deficiency, Following Control of Diabetic Coma. C. S. Logsdon and T. H. McGavack.—p. 658.
Studies on Nonspecific Cholinesterase in Serum of Human Female. M. E. Davis, Evelyn Ai-Feng Yu and N. W. Fugo.—p. 666.
Electroencephalogram in Hypoparathyroidism with Tetany and Epilepsy. H. Gotta and J. B. Odoriz.—p. 674.
*Diabetes Mellitus Followed by Addison's Disease and Hypothyroidism,* Simulating Panhypopituitarism. D. E. Bernstein.—p. 687.
Fertility and Dysgerminoma Ovarii. T. L. Ball and C. T. Javert.—p. 694.

## Journal of Clinical Investigation, Boston

**27**:565-690 (Sept.) 1948. **Partial Index**

Effect of Anemia and Polycythemia on Digital Intravascular Blood Viscosity. M. Mendlowitz.—p. 565.
Homologous and Heterologous Antibody Response of Infants and Children to Multiple Injections of Single Strain of Influenza Virus. J. J. Quilligan Jr., Elva Minuse and T. Francis Jr.—p. 572.
*Effect of Spontaneous and Artificially Induced Fever on Liver Function. M. H. Hicks, H. P. Holt, J. L. Guerrant and B. S. Leavell.—p. 580.
Effects of Cardiac Glycosides on Dynamics of Circulation in Congestive Heart Failure: I. Ouabain. R. A. Bloomfield, B. Rapoport, J. P. Milnor and others.—p. 588.
Biliary Excretion of Bromsulfalein as Test of Liver Function in Group of Patients Following Hepatitis or Serum Jaundice. C. W. Wirts Jr. and B. K. Bradford.—p. 600.
Studies on Mucoproteins of Human Plasma. R. J. Winzler, A. W. Devor, J. W. Mehl and Irene M. Smyth.—p. 609.
*Estimation of Hepatic Blood Flow and Splanchnic Oxygen Consumption* in Heart Failure. J. D. Myers and J. B. Hickam.—p. 620.
Evaluation of Effective Dosage of Caronamide (4-Carboxyphenylmethanesulfonanilide) for Suppression of Tubular Excretion of Penicillin in Children. F. B. Corneal, G. Hildick-Smith, Mary B. Fell and T. F. McNair Scott.—p. 628.
Renal Oxygen Consumption in Man During Abdominal Compression. S. E. Bradley and M. H. Halperin.—p. 635.
Effect of Exercise on Renal Plasma Flow in Normal Male Subjects. C. B. Chapman, A. Henschel, J. Minckler and others.—p. 639.
Renal Clearance of Endogenous "Creatinine" in Man. J. Brod and J. H. Sirota.—p. 645.
Studies on Amino Acid Metabolism. A. de Vries and B. Alexander.—p. 655.
Auriculotemporal Syndrome: Clinical and Pharmacologic Study. A. S. Freedberg, R. S. Shaw and M. J. McManus.—p. 669.

**Effect of Fever on Hepatic Function.**—Observing the behavior of several hepatic function tests in various disorders during the war in Italy, Hicks and his associates gained the impression that abnormal results occurred frequently in conditions other than infectious hepatitis and led them to suspect that fever exerted an important influence on the rate of sulfobromophthalein sodium clearance. This suggested the importance of studying the effect of artificially induced fever on hepatic function. Such a study has been completed on patients on the wards of the University of Virginia Hospital. The patients studied fell into four groups: (1) those with acute infectious hepatitis, (2) those with tertian malaria, (3) those with primary atypical pneumonia and (4) those with miscellaneous conditions. The choice of tests was limited by the circumstances under which the studies were performed. The sulfobromophthalein hepatic function test was performed as modified by Mateer and others, and the cephalin-cholesterol flocculation test was done according to the method of Hanger. The authors found that abnormal sulfobromophthalein retention and abnormal results of cephalin-cholesterol flocculation tests occur frequently in disorders other than infectious hepatitis. The highest incidence of abnormal cephalin-cholesterol flocculation reactions occurred during convalescence in a group of patients with atypical pneumonia. In all groups the incidence of abnormal sulfobromophthalein retention was much higher on days when fever was present. Fever induced by artificial means was associated with diminished sulfobromophthalein clearance, and it appears probable that diminished sulfobromophthalein clearance is due to impaired function of the cells in the liver. The temperature of the patient at the time the test is performed must be considered in the interpretation of the bromsulfalein test.

### Journal of Immunology, Baltimore

**60:**1-180 (Sept.) 1948

Studies on Coagulase-Reacting Factor: II. Properties of Coagulase-Reacting Factor, and Relation to Blood Clotting Components. M. Tager and Harriet B. Hales.—p. 1.
Some Factors Influencing the Selection of Complement-Fixation Method: II. Parallel Use of Direct and Indirect Technics. Christine E. Rice.—p. 11.
Study of Fixed Rabies Virus Propagated in Brain of Guinea Pig Fetus. Chen Chen-Jen and S. H. Zia.—p. 17.
Relation of Antagonistic Coliform Organisms to Shigella Infections: I. Survey Observations. S. P. Halbert.—p. 23.
Quantitative Assay of Neutralizing Antibody Content of Pools of Gamma Globulin from Different Sections of United States Against Viruses of Herpes Simplex, Lymphocytic Choriomeningitis and Epidemic Keratoconjunctivitis. J. T. Heyl, H. F. Allen and F. S. Cheever.—p. 37.
"Inhibition" of Isoagglutinin Activity by Human Plasma and Its Fractions. F. Homburger and M. Melin.—p. 47.
Serologic Studies on Antigens from Histoplasma Capsulatum Darling. S. B. Salvin and G. A. Hottle.—p. 57.
Complement Fixation Test in Yellow Fever Epidemiology: II. Development and Loss of Complement-Fixing Antibodies in Marmosets (Callithrix Penicillata, C. Jacchus and Leontocebus Chrysomelas). A. Perlowagora and T. P. Hughes.—p. 67.
Ultraviolet Absorption Spectroscopy of Immune Precipitates. H. N. Eisen.—p. 77.
Determination of Optimal Haemolysin Level for Use in Complement-Fixation Test. J. W. Fisher.—p. 85.
Antigenic Relationships Between M, S, and R Phases of Streptococci and Their Diphtheroid Descendants. R. R. Mellon.—p. 91.
Skin-Test Antigen Common to Five Viruses of Psittacosis-Lymphogranuloma Group. L. Killham.—p. 157.
Hemophilus Pertussis Soluble Antigen and Complement Fixing Antibodies. I. A. Parfentjev and M. E. Virion.—p. 167.
Position of Wakefield Bacilli (Berger). A. J. Weil and H. Slafkovsky.—p. 173.
Studies in Dysentery Vaccination: V. Immunization of Mice with *Vaccine of Shigella Sonnei Administered by Gavage.* M. L. Cooper and Helen M. Keller.—p. 177.

### Journal Pharmacology & Exper. Therap., Baltimore

**93:**383-494 (Aug.) 1948. **Partial Index**

Effect of Rutin on Coagulation Time of Rat Blood. M. B. Plungian, J. C. Munch and J. B. Wolffe.—p. 383.
Comparative Study of Activity and Toxicity of Hexylcaine (1-Cyclohexylamino-2-Propylbenzoate); New Local Anesthetic Agent. K. H. Beyer, A. R. Latven, W. A. Freyburger and Mary P. Parker.—p. 388.
**Effect of Sodium Bicarbonate on Renal Excretion of Salicylate.* Florence Williams and J. R. Leonards.—p. 401.
Effect of Various Sulfur-Containing Compounds on Alphanaphthylthiourea (Antu) Toxicity to Rats. L. Karel and B. J. Meyer.—p. 414.
Comparison of Pressor Action of Alicyclic Derivatives of Aliphatic Amines. E. E. Swanson and K. K. Chen.—p. 423.
Chemotherapeutic Studies on Series of Dithiocarbamates and Their Bismuth Derivatives. A. Goth and F. J. Robinson.—p. 430.
Adrenergic Blocking Drugs.: I: Comparisons of Effectiveness in Decreasing Epinephrine Toxicity in Mice. E. R. Loew and Audrey Micetich.—p. 434.
Studies on Nitrate Esters: I. Nitrite-Producing Systems in Rabbit Tissues. F. W. Oberst and F. H. Snyder.—p. 444.
p-Aminomethylbenzenesulfonamide (Sulfamylon): Its Determination in Biological Fluids, with Preliminary Report on Blood Serum Levels Obtained Upon Oral and Subcutaneous Administration. M. L. Heideman Jr. and R. C. Rutledge Jr.—p. 451.
Dynamics of Recovery and Measure of Drug Antagonism. Inhibition of Smooth Muscle by Lysocithin and Antihistaminics. M. Rocha, E. Silva and W. T. Beraldo.—p. 457.

**Sodium Bicarbonate and Excretion of Salicylate.**—Williams and Leonards say that since Smull and others in 1944 demonstrated that bicarbonate decreases the serum level of salicylate there has been renewed interest in the advisability of administering sodium bicarbonate during salicylate therapy. On the basis of studies the authors made on this problem they conclude that the administration of alkali to rats receiving sodium salicylate has no influence on the gastrointestinal absorption of this drug. The oral administration of bicarbonate to dogs receiving sodium salicylate causes a decrease in the serum salicylate level. This decline can be accounted for by the large increase in the excretion of salicylate in the urine. Sodium bicarbonate increases the clearance of salicylate four to nine times in a dog to values approaching the glomerular filtration rate. In human beings the action of bicarbonate on the salicylate clearance is not nearly so great. The salicylate clearance in human subjects is approximately equal to the urea clearance, but in the presence of administered bicarbonate the salicylate clearance rises above the urea clearance figure and also approaches the glomerular filtration rate. Sodium bicarbonate has no significant effect on the binding of salicylate by the plasma proteins of dogs or human beings. Salicylates are excreted in the urine in the unchanged form and also as conjugates with glycine and glycuronic acid. In dogs given intravenous injections of sodium salicylate, 75 per cent to 90 per cent of the total salicylate is excreted in the free form. In human subjects given salicylate orally, only 30 to 50 per cent of the total salicylate is excreted in the free form. The administration of sodium bicarbonate mainly increases the output of the unconjugated salicylate.

### Kansas Medical Society Journal, Topeka

**49:**361-404 (Sept.) 1948

*Neuroses.* B. L. Keyes.—p. 361.
Fractures About the Ankle. J. F. Thurlow.—p. 367.
*Onycholysis Due to Plastic Adhesive for Nail Lacquer. B. H. Winston and R. L. Sutton Jr.—p. 371.
Hysterectomy—New Method of Suspending the Cervical Stump Following Abdominal Hysterectomy. L. K. Zimmer.—p. 373.

**Onycholysis Due to Nail Lacquer.**—Winston and Sutton encountered within a short period of time several women with onycholysis of all or most of the fingernails. After a brief study it became apparent that this type of onycholysis was caused by the newly introduced cosmetic preparations of plastic adhesive intended to keep colorful nail lacquer in place. Within a few months of their commencing the use of such substances, patients, who applied, respectively, "perma-nail," "nail-on" and "ever-on" noted thickening of the distal nail bed under the free margins of the nails and progressive, proximal separation of the nail accompanied by longitudinally streaked, brownish discoloration. The ingredients usually present in these special base coats are solutions of synthetic rubber of the Buna N type such as "perbunan" 35N560 modified by a phenol-formaldehyde type of resin such as "durez" 11078 or "bakelite" BR 17620, and dissolved in methyl ethyl ketone. Since the onychial damage done by various brands was clinically identical, it is assumed the chemical is similar in each. When the adhesive was left off, regrowth of the nails did take place. The collection of 4 examples of a "new disease" in a few weeks of a dermatologic practice suggests that many cases are occurring.

### *Military Surgeon, Washington, D. C.*

**103:**169-250 (Sept.) 1948

Medicine and War: 1948 Kober Lecture at Georgetown University, March 28, 1948. E. E. Hume.—p. 169.
Psychiatry in the Next War: Shall We Again Waste Manpower? A. R. Koontz.—p. 197.
Neurosurgical Management of Wounded in Okinawa Campaign. J. W. Devine Jr. and H. W. Farr.—p. 202.
Knife Blade Traversing Maxillary Antrum and Remaining in Nose Six Years. A. J. Vadala and K. Somers.—p. 207.
*Typhoid Fever in Inoculated U. S. Soldiers. W. W. Tribby, A. H. Stock and F. B. Warner.—p. 210.
Frostbite: Subjective Case History in German Soldier. J. J. Silverman.—p. 216.
Ideal Hospital for Paraplegic Patients. L. W. Freeman.—p. 219.

**Typhoid in Inoculated Soldiers.**—Tribby and his associates present observations on this problem in Italy and French Morocco. Eberthella typhosa was cultured from 45 and Salmonella paratyphi B from 10 inoculated soldiers in French Morocco and Italy. A small outbreak of typhoid in an infantry company was studied intensively. Two possible sources for the outbreak were found: (1) polluted water and (2) spreading by food handlers. Some soldiers drank unchlorinated water, believing that they were completely protected by antityphoid vaccination. This false sense of security appeared to be shared not only by enlisted men and line officers but by some medical officers as well. The dangerous belief of complete protection may lead to unnecessary risk. The authors recommend early seizure and chlorination of captured foreign water supplies, especially in view of the possibilities in modern warfare that bomb hits might mix sewage and drinking water. The continued need for the consumption of waters which are potable bacteriologically should be better emphasized.

## New England Journal of Medicine, Boston

### **239**:383-418 (Sept. 9) 1948

Transtracheal Anesthesia for Bronchoscopy. D. E. Harken and A. M. Salzberg.—p. 383.
*Coexisting Tuberculous and Meningococcal Meningitis: Report of Case. E. A. Riley.—p. 386.
Prophylaxis Against Allergy: Pediatric Program. M. H. Shulman.—p. 391.
Unusual Complication of Miller-Abbott Intubation: Report of Case. J. E. Caruolo.—p. 396.
Primary Attack of Vivax Malaria Occurring Twenty-Seven Months After Infection. W. S. Jordan Jr.—p. 397.
Proctology. E. P. Hayden.—p. 399.
Chronic Gastritis of Superficial Type, Superimposed on Hypertrophic Type.—p. 406.
Metastatic Malignant Melanoma of Lung.—p. 408.

**Coexisting Tuberculous and Meningococcic Meningitis.**—Riley presents a history of a man aged 26. What at the onset appeared to be an uncomplicated case of meningococcic meningitis terminated fatally with a tuberculous infection of the meninges, and was further complicated by the recrudescence of a malarial infection that the patient had contracted during his service in Sicily and Italy. The author reviews the literature, collecting cases that have been reported since 1911. Most of these case reports are from the foreign literature. The case reported here is the first to be reported from American sources, and is approximately the thirty-fourth case of its type in the literature. The source of the tuberculous meningitis in the author's patient remains a mystery. No visceral focus of tuberculosis was found in any of the organs examined. The clinical and pathologic evidence in the reported case suggests that the meningococcic infection may have activated a latent tuberculous focus.

### **239**:419-452 (Sept. 16) 1948

Epidemiology in Country Practice. W. N. Pickles.—p. 419.
*Radioactivity and Urinary-Tract Calculi. D. S. Cristol, A. E. Bothe and P. W. Grotzinger.—p. 427.
*Premedication and* Anesthesia in Obstetrics: Current Practices at Boston Lying-in Hospital. B. B. Hershenson.—p. 429.
Familial Hereditary Hemorrhagic Telangiectasia in Negro: Report of Case. S. O. Schwartz and B. E. Armstrong.—p. 434.
Plastic Surgery: Skin Transplantation. B. Cannon.—p. 435.
Brodie's Abscess of Tibia.—p. 443.
Mesenteric Venous Thrombosis.—p. 444.

**Radioactivity and Urinary Tract Calculi.**—Cristol and his co-workers report a patient with a vesical calculus, multiple prostatic calculi and polycythemia vera. In an effort to bring the blood hematocrit level within normal limits prior to surgical treatment, it was decided to subject the patient to radioactive phosphorus therapy and thereafter to observe any changes in the size and configuration of the calculi. The first dose contained 6 millicuries, and the second, administered five months later, 10 millicuries. Periodically during the seven month period before operation, the calculus was observed radiographically and cystoscopically and appeared to grow larger. The bacterial and chemical constituents of the urine were also repeatedly examined. When the hematocrit reading appeared optimal, suprapubic removal of the vesical calculus, together with a revision of the vesical neck, was undertaken. The patient made an uneventful recovery and left the hospital free from urinary symptoms three weeks after operation. The authors suggest that in addition to the dramatic and graphic representation of stone formation, the employment of the radioactive element may prove to have many worth while uses in the study of formation of calculi in the urinary tract. This method might serve as a check on various proposed methods of preventing formation of additional stones. It gives an opportunity to observe, for example, the effect of an acid ash diet on the formation of alkaline stone. It also suggests the study of the effect of radioactive materials on associated infections of the urinary tract. The possible effects of residual radioactivity in calculi on the containing tissues are also under investigation. This is apparently the first recorded case of removal of a radioactive calculus.

## Occupational Medicine, Chicago

### **5**:131-248 (Feb.) 1948

Outlook for Industrial Medical Service. R. L. Sensenich.—p. 131.
Industrial Medicine and Medical Education. H. G. Weiskotten.—p. 135.
Statistics of Automobile Accidents for 1947. N. H. Dearborn.—p. 139.
Industrial Medical Services and General Medical Care. J. R. McVay.—p. 144.
History in the Making. M. Meyer.—p. 148.
*Clinical Aspects of Occupational Cancer. W. C. Hueper.—p. 157.
Program of Industrial Medical Service for Small Industrial Establishments: Proposed by Community Council for Industrial Health, Medical Society of County of New York. K. C. Peacock.—p. 166.
Motor Vehicle Accidents: Handling the Immediate Situation. C. J. Potthoff.—p. 175.
*Incidence of Functional Disease (Neurosis) Among Patients of Various Occupations. H. L. Smith and N. C. Hightower Jr.—p. 182.
The Worker with Cardiac Disease in Industry. H. H. Steinberg—p. 186.
Nutritional Factors Affecting the Toxicity of Halogenated Hydrocarbons: Review. L. L. Miller.—p. 194.

**Clinical Aspects of Occupational Cancer.**—Hueper points out that about one hundred and fifty years have passed since the demonstration of soot as a carcinogenic agent and that about seventy-five years have gone by since it was shown that arsenic, tar and crude paraffin oil have such properties. In recent decades many other physical and chemical agents, which are part of the industrial environment, have been recognized as carcinogenic agents. There are indications that the entire width and variety of the exogenous carcinogenic spectrum is not known and that during the coming years new agents related to occupational activity and industrial production may be discovered to be carcinogenic. Physicians engaged in industrial practice could be of great help in discovering carcinogenic agents if they would scrutinize all cancers occurring in workers for potential occupational causation. The author discusses the incidence of occupational cancer, known data on carcinogens and the treatment of occupational cancer. He also emphasizes the need of periodic examinations of workers in certain occupations.

**Neurosis in Various Occupations.**—Smith and Hightower attempted to determine whether there exist differences in the incidence of functional disease among patients of various occupations. A control study was made of 300 patients consecutively admitted to the Mayo Clinic. The following occupation groups were studied: clergymen, dentists, farmers, housewives, lawyers, nuns, physicians, railroad engineers and school teachers. An additional study was made of a group each of Jews and unmarried women. Jews were studied because among them the incidence of neuroses is declared to be high, and the unmarried women were studied mainly as a control for the occupational group of nuns. The authors gained the impression that about a fourth of all adult patients examined at the clinic receive a diagnosis solely of neurosis and that the incidence of neuroses is somewhat higher among female than among male patients. The incidence of neuroses among patients of the Mayo Clinic may be slightly less than that among patients as they are examined by their home physicians, because probably more of those whose conditions are severe or complicated are referred to the clinic. The authors feel that the low incidence of neurosis in railroad engineers (9 per cent) may be partly explained by the fact that these men are older than were the members of most of the other groups. As persons become older, they tend to become less emotional. Most of the neurotic patients were somewhat younger than were members of the groups as a whole. Railroad engineers usually work as firemen for a long period and the chances are that if they are emotionally unstable or neurotic they will not be offered promotion to the status of engineer. Farmers gave the next lowest incidence of diagnoses of purely functional disease. Persons who do manual work seem to be less inclined to be neurotic than those who do other types of work. In public school teachers purely functional disease was found in 33 per cent. Functional plus organic disease was found in 21 per cent of the total. Thus 54 per cent of the teachers had some type of functional disease. This is the highest percentage of diagnoses of neurosis of all occupational groups. Percentages for other groups were 39 for clergymen, 36 for housewives and 42 for nuns. The incidence of neurosis in Jews was no higher than in the controls. The study confirms that the incidence of neuroses among persons of various occupations differs greatly.

## Ohio State Medical Journal, Columbus

**44:**865-968 (Sept.) 1948

Case of Mercuric Chloride Poisoning Treated with British Anti-Lewisite (BAL). J. S. Frankel, S. Goodman and S. Hantman.—p. 897.
Papanicolaou Test in Early Diagnosis of Uterine Cancer. C. E. Hufford and E. L. Burns.—p. 900.
Curable Forms of Heart Disease. A. C. Ernstene and W. L. Proudfit.—p. 904.
Hyperinsulinism: Relief of Hypoglycemia by Removal of Pancreatic Islet Cell Adenoma. L. N. Irvin, T. D. Johnson and D. P. Foster.—p. 909.
Total vs. Subtotal Hysterectomy with Special Reference to Carcinoma of Cervix—Analysis of 257 Personal Cases. J. J. McDonough.—p. 914.
Short Wave Diathermy Treatment of Sulfonamide-Renal-Block. B. C. Wiley.—p. 918.

## Pennsylvania Medical Journal, Harrisburg

**51:**1185-1376 (Aug.) 1948

Differential Diagnosis of Poliomyelitis. J. J. Toland 3d.—p. 1205.
Silicosis. C. E. Ervin, D. C. Stahle and P. B. Mulligan.—p. 1209.
Surgery in Congenital Heart Disease. Grace S. Gregg, J. J. McAleese and F. J. Gregg.—p. 1216.
Continuous Spinal Anesthesia in Gynecology. R. C. Nucci and Irene A. Shank.—p. 1219.

## Quarterly J. of Studies on Alcohol, New Haven, Conn.

**9:**175-328 (Sept.) 1948

Psychometric Differentiation of Alcoholics from Nonalcoholics. M. R. Manson.—p. 175.
Function of Alcohol in Mohave Society. G. Devereux.—p. 207.
Drinking and Dating Habits of 336 College Women in a Coeducational Institution. Carol A. Hecht, Ruth J. Grine and Sally E. Rothrock.—p. 252.
Economic Aspects of State Alcoholic Beverage Monopoly Enterprises, 1937-1946. B. Y. Landis.—p. 259.
Chinese Wine: Some Notes on Its Social Use. M. Moore.—p. 270.

## Radiology, Syracuse, N. Y.

**51:**297-452 (Sept.) 1948

Roentgen Ray Diagnosis of Malignant and Potentially Malignant Lesions of Colon and Rectum. J. C. Bell and J. B. Douglas.—p. 297.
Mucosal Pattern of Terminal Ileum in Children: Preliminary Report. Josephine Wells.—p. 305.
Acute Small Intestinal Obstruction. I. H. Lockwood, A. B. Smith and J. W. Walker.—p. 310.
Extrinsic Deformities of Colon. R. C. Pendergrass.—p. 320.
Barium Sulfate in Saline Suspension: Examination of Presence of Partial Obstruction. G. M. Wyatt.—p. 326.
*Roentgen Treatment of External Infections Due to Bacillus Anthracis. M. Riebeling.—p. 333.
*Roentgen Rays in Prevention and Treatment of Infections. J. F. Kelly, A. Dowell and J. E. Downing.—p. 341.
Retrosternal Infiltration in Malignant Lymphoma. F. G. Fleischner, C. Bernstein and B. E. LeVine.—p. 350.
Fluoroscopic Image Brightening by Electronic Means. J. W. Coltman.—p. 359.
Hypervitaminosis A: Report of Two Cases in Infants. P. E. Rothman and E. Elizabeth Leon.—p. 368.
Retroperitoneal Mucocele of Appendix: Case Report with Characteristic Roentgen Features. L. J. Bonann and J. G. Davis.—p. 375.
Mobile Calcified Choroid Plexuses: Case Reports. M. Malbin.—p. 383.
Ulcer of Greater Curvature of Stomach: Benign or Malignant? Case Report of Benign Ulcer. W. A. Russell.—p. 387.
Use of Adrenal Cortical Hormone in Radiation Sickness. F. Ellinger.—p. 394.
Effects of Radiation on Hemopoiesis. J. S. Lawrence, A. H. Dowdy and W. N. Valentine.—p. 400.

**Roentgen Treatment of Anthrax Infections.**—Riebeling treated 36 Mexicans, 22 males and 14 females, with infections produced by Bacillus anthracis, by roentgen irradiation. In 16 cases the disease appeared to be local or regional; systemic manifestations were present in 16, and 4 patients were in a state of coma when first seen. Twenty-seven patients presented a single lesion, 8 presented two lesions and 1 presented four lesions. Seven patients had been treated previously by cauterization, by intravenous injection of bovine serum and by penicillin, respectively, without improvement. Patients with mild disease were treated by irradiation every twenty-four to forty-eight hours, the dose per field varying from 18 to 85 roentgens. In very ill patients treatment was instituted with a small dose to each field, usually 18 roentgens every twelve hours. The interval between treatments was increased after one or two days to twenty-four hours and later to seventy-two hours. Because of surface irregularities and the extent of involvement, some patients were treated through multiple fields. Treatment was given with radiation of 140 kilovolts, with filtration of 2.0 mm. of aluminum to 0.25 mm. of copper and aluminum. The usual skin distance was 30 cm. All patients showed a prompt response to irradiation. Bacillus anthracis disappeared from the exudate from the primary lesion and general and local manifestations subsided. All patients were known to be free of symptoms within fifteen days to two months. No complications incident to treatment were observed.

**Roentgen Rays in Treatment of Infections.**—According to Kelly and his co-workers, adequate dosage of roentgen ray, living tissues and a suitable time factor are essential to obtain beneficial effects in treating infections by irradiation. A girl aged 7 with tetanus was treated with large doses of antitetanus serum, phenobarbital, penicillin, streptomycin, tribromoethanol, orange juice and glucose. Roentgen treatment was started on the third day, as there was apparently no response to the previous measures. The patient was free of evidences of toxemia at the end of the first week, four days after irradiation was initiated, and fully recovered at the end of the second week. Because of the many methods of treatment employed it is impossible to attribute the result to any one of these. Roentgen therapy can be recommended for tetanus in conjunction with other measures. Roentgen treatment was practiced in a girl aged 15 who had her right humerus shattered; a severe gas infection developed despite the administration of penicillin and anti-gas gangrene serum and the use of surgical cleansing. Suspicious tissues were removed from the anterior part of the arm, the axillary area and the anterior chest wall. Little tissue was removed from the posterior chest wall, as the patient was too seriously sick to permit the manipulation required for this procedure. The tissues posteriorly were as badly infected as were the tissues anteriorly, but much of them recovered fully. There was good union of the main upper and lower fragments of the humerus. Amputation of an extremity is not necessary for the successful treatment of gas gangrene if roentgen treatment is promptly instituted. Removal of tissues during the acute toxic phase of the disease is unnecessary. Due to the latent period of the effect of roentgen rays from eighteen to twenty-four hours, treatment must be started early. The authors are not convinced that the antibiotic will take the place of roentgen rays in the prevention or treatment of acute infection, but these drugs may be used simultaneously without ill effects. Sulfonamide drugs should not be given in conjunction with irradiation. No patient should be allowed to die of bacterial toxemia without benefit of roentgen treatment.

## South Carolina Medical Assn. Journal, Florence

**44:**263-296 (Aug.) 1948

Looking Backward in Pediatrics—Challenge for the Future. W. W. Quillian.—p. 263.
Granuloma Inguinale—Report of 85 Cases Treated with Streptomycin. R. J. Zimmerman and G. C. Smith.—p. 267.
Ten-Year Maternal Mortality Review—Greenville Hospitals. J. D. Parker and H. M. Allison.—p. 269.

## Southern Surgeon, Atlanta, Ga.

**14:**611-670 (Sept.) 1948

Control of Arrhythmias Occurring During Operation Upon Valves of Heart: Experimental and Clinical Observations. H. G. Smithy.—p. 611.
Problems in Diagnosis and Treatment of Kidney Stones. H. L. Kretschmer.—p. 619.
Head Injuries. J. W. Devine Jr.—p. 632.
Carcinoma of Breast: Comparative Statistical Study. E. G. Ramsdell.—p. 637.
*Evaluation of Treatment of Endometriosis. A. F. Burnside.—p. 645.
Genital Malignancy in Female. R. A. Ross.—p. 651.

**Endometriosis.**—Burnside operated in his private practice during the years 1938 to 1947 on 101 patients with endometriosis. There were 18 who had all of their ovarian tissue removed. Of the remaining 83 patients 12 had a subtotal and 43 a complete hysterectomy. Of the total number, 44 were left with the possibility of becoming pregnant and 7 actually became pregnant. Of the 65 women who could be followed up to the time of this study, 2 required a second operation, 2 had pain that was severe enough to warrant roentgen ray castration and 3 are taking testosterone intermittently to control pain. Measures that help prevent endometriosis include correction of retrodisplacements, stenosis and fibroids; the use of an impervious material over the abdominal incision while doing cesarean operations, and also the practice of discarding the instruments that were used before closing the abdomen. It may be advisable to use testosterone in small doses in the treatment of young women with endometriosis, in order to keep the disease in abeyance. The patient should be advised of her condition and of the problems with which she is faced. This is especially true in the case of young, single women who wish to be married and have children. There are times after palliative surgical treatment when it is preferable to give a castrating dose of roentgen rays rather than subject the patient to another operation.

## Surgery, St. Louis

**24**:445-592 (Sept.) 1948

Venous Thrombosis. A. Ochsner.—p. 445.
*Postthrombotic Syndrome of Lower Extremity: Treatment by Interruption of Superficial Femoral Vein and Ligation and Stripping of Long and Short Saphenous Veins. R. R. Linton and I. B. Hardy Jr.—p. 452.
Surgical Treatment of Essential Hypertension. IV. Case Selection and Technic as Influencing Results. G. deTakats, O. C. Julian and E. F. Fowler.—p. 469.
Portacaval Anastomosis. A. H. Blakemore.—p. 480.
Causalgia. III. General Discussion. H. B. Shumacker Jr.—p. 485.
Experimental Cardiac Hypertrophy: Acute Effect of Pulmonic and Aortic Stenosis. F. Gerbode and A. Selzer.—p. 505.
*Relationship Between Gross Type of Gastric Carcinoma and Anacidity. R. Hebbel and D. Gaviser.—p. 512.
*Clinical Studies in Craniosynostosis: Analysis of Fifty Cases and Description of Method of Surgical Treatment. F. D. Ingraham, E. Alexander Jr. and D. D. Matson.—p. 518.
Antibacterial Effects of G-5, G-11, and A-151, with Special Reference to Their Use in Production of Germicidal Soap. P. B. Price and Alberta Bonnett.—p. 542.
Technic of Inguinal Node Dissection. I. D. Baronofsky.—p. 555.

**Post-Thrombotic Syndrome of Lower Extremity.**—Linton and Hardy report 49 patients, 31 women and 18 men, between the ages of 24 and 69 years with thrombotic sequelae in one or both lower extremities. A definite history of a preexisting deep venous thrombosis of the lower extremities was given by 46. The post-thrombotic syndrome is characterized by pain, edema, varicose veins, stasis cellulitis, stasis dermatitis, pigmentation and chronic ulceration. It is believed that this syndrome develops as a result of the sustained increased pressure in the veins of the lower extremity due to incompetent valves of the deep, communicating and superficial systems of veins following canalization of the deep veins. Interruption of the femoral vein distal to the profunda femoris branch, ligation and stripping of the long saphenous vein, and, in addition, the short saphenous vein if it is varicosed, have been performed in 84 extremities presenting the post-thrombotic syndrome in various stages. The common femoral vein should not be interrupted. The importance of removing the entire main saphenous trunks is emphasized. None of the extremities was injured by the procedure, indicating that the superficial femoral and the saphenous veins are not necessary collateral venous channels in the post-thrombotic extremity. The postoperative complications were few and not serious, and the mortality rate was zero. The results of follow-up varying from one to sixteen months in the 84 extremities subjected to this form of treatment were encouraging, but further years of observation are necessary to determine the definite value of this method.

**Gastric Carcinoma and Anacidity.**—Hebbel and Gaviser determined the presence or absence of achlorhydria in 284 patients, 205 men and 79 women, with carcinoma of the stomach. Gastric resection was performed in all cases, and the resected specimen was available for reexamination. Two hundred and forty-three patients (86 per cent) had achlorhydria or maximum acid values below 30 degrees; 220 patients (77 per cent) had achlorhydria or maximum acid values below 20 degrees, and 185 patients (65 per cent) had achlorhydria. Achlorhydria was uniformly present only in association with tumors of Borrmann type I (9 cases) and these totaled but 3.2 per cent of the series. For tumors of Borrmann types II, III and IV, there was no constant association of either achlorhydria or hypochlorhydria. Twenty-two (28 per cent) of the type II tumors, 16 (34 per cent) of the type III tumors and 61 (41 per cent) of the type IV tumors were associated with free acid on gastric analysis. In each of these groups the maximum acid values were below 20 degrees in about one third of the cases and exceeded 20 degrees in about two thirds of the cases. While these data follow others in showing the predominance of reduced secretory capacity, as of the time the diagnosis is made, in a group of cases of gastric carcinoma, they also emphasize the fact that no range of acidity precludes the disease. Emphasis on the examination of persons with achlorhydria or hypochlorhydria in order to detect most early gastric cancer is valid only to the extent that achlorhydria with cancer also means achlorhydria before the cancer appears.

**Craniosynostosis.**—Ingraham and his co-workers report 50 children with all varieties of premature closure of the cranial sutures for which the term "craniosynostosis" has been used. Twenty-nine children, 24 boys and 5 girls, presented premature closure of the sagittal suture. There were 8 patients, 5 girls and 3 boys, with premature closure of the coronal suture, 4 patients with premature closure of the sagittal and coronal sutures, 3 with premature closure of sagittal and lambdoid sutures and 6 with that of all cranial sutures. Twenty patients (40 per cent), 7 of the sagittal group, 3 of the coronal group and 10 with two or more sutures fused, were retarded to some extent before surgical treatment was practiced. Of the 44 patients treated surgically, 20 patients received treatment before the age of one year. Because of the rapid growth of the brain during the first year of life, it is to be expected that the best results from surgical treatment will be obtained during this period. This has been confirmed in the author's cases. Many patients came to the hospital at ages varying from 3 to 7 years and in these little was to be expected from any surgical procedure. In spite of this there was definite improvement in the patient's behavior at home. Eleven patients (25 per cent) showed retardation after operation. In general, the prognosis for mental development of a patient with premature closure of the cranial sutures treated under the age of 1 year is excellent, but if synostosis is evident at birth, surgical therapy should not be delayed more than a few weeks. Linear craniectomy with polyethylene film inserted over the bone edges to retard regeneration of bone has been adopted as the operation of choice. There have not been operative deaths, wound infections or serious complications.

## Wisconsin Medical Journal, Madison

**47**:840-968 (Sept.) 1948

*Treatment of Raynaud's Disease with Nitroglycerine. M. J. Fox and C. L. Leslie.—p. 855.
Carcinoma of Common Bile Duct: Report of Case, with Discussion. J. A. Killins.—p. 859.
Focal Points in Child Development. M. J. E. Senn.—p. 861.
Early Schizophrenia Complicated by Rheumatic Fever. H. Veit.—p. 865.
Diverticulosis and Diverticulitis of Appendix. J. W. Frye and J. B. Miale.—p. 868.

**Glyceryl Trinitrate in Raynaud's Disease.**—Fox and Leslie present the histories of 2 patients in both of whom several clinicians had confirmed the diagnosis of Raynaud's disease and previous treatments had been unsuccessful. The first patient was a woman, aged 40. Since the onset of her illness in the winter of 1943-1944 her condition had been diagnosed on three occasions as Raynaud's disease. Many therapeutic approaches have been attempted, including vitamins, the parenteral use of papaverine and the parenteral use of alcohol. With the exception of the last, all were not beneficial. The alcohol injections gave fleeting relief. In October 1947, the patient came under the medical care of the authors. A right unilateral stellate ganglion block had been done previously. This caused Horner's syndrome, and the right hand became pink and warm. The patient was referred to the Mayo Clinic for a possible sympathectomy. Dr. A. W. Adson suggested that surgical treatment be delayed and that the topical use of 2 per cent glyceryl trinitrate in wool fat three times daily be tried. Since using the glyceryl trinitrate preparation, the patient has noted that her hands are now persistently pink in color rather than white. The amount of swelling of the fingers has decreased. The ulcer on the tip of the right index finger has healed, and the gangrenous area on the same finger has decreased. The authors later resorted to the topical application of 2 per cent glyceryl trinitrate in wool fat in a woman, aged 30, in whom Raynaud's disease had proved refractory to various treatments. Here again the glyceryl trinitrate in wool fat effected great improvement.

## FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

### Indian Medical Gazette, Calcutta

83:113-162 (March) 1948. Partial Index

*Presumptive Malarial Pneumonia. R. Heilig.—p. 116.

Incidence and Causation of Glycosuria in Pregnancy: Part II. K. C. Batliwalla.—p. 125.

Forced Feeding in Acute Dysentery. A. T. W. Simeons.—p. 134.

Fleas and Rats with Reference to Plague in Calcutta. D. N. Roy. —p. 149.

Assessment of Value of Plague Vaccine (Haffkine Institute) as Used in Single Dose Mass Inoculation (Field Enquiry). T. B. Patel and J. L. Rebello.—p. 151.

**Presumptive Malarial Pneumonia.**—Heilig observed 64 cases of pneumonia that were complicated by malaria. He reports cases in which treatment was carried out in such a way that the effects of sulfonamide drugs and penicillin on the pneumonic process could be clearly distinguished from those of antimalarial therapy. Five cases of presumptive malarial pneumonia involving one half to three lobes are reported. While physical and roentgenologic findings were those of a pneumococcus pneumonia, in 4 of these cases the fever was remittent. The leukocyte counts on admission varied between 5,500 and 20,000. The differential picture showed moderate monocytosis. The sedimentation rate of erythrocytes was considerably increased. Malarial ring forms were found in 2 cases; the reaction to the malaria flocculation test was or soon became positive in all of them. Slight or moderate enlargement of the spleen was present without exception. As a contrast, a case of penumonia merely associated with malaria is described. The most important feature, common to all of the cases of presumptive malarial pneumonia, was that neither sulfonamide drugs nor, in 2 of them, penicillin had any effect on either the general condition, the pneumonic consolidation or the temperature, whereas antimalarial therapy promptly brought about defervescence, resolution and surprisingly quick general improvement. These cases represent a little known syndrome of combined pneumococcus and malarial infection, in which the elimination of the pneumococci does not lead to clinical improvement because the presence of plasmodia maintains fever and prevents resolution. The importance of recognizing the malarial factor is emphasized, as timely institution of antimalarial therapy proves life saving. The fact that malarial parasites were found in only 2 of the 5 patients may be due to previous treatment with antimalarial drugs. The seasonal incidence of presumptive malarial pneumonia is determined by the pneumonia season, not by the maximum incidence of malaria.

### Journal Obst. & Gynaec. of Brit. Empire, Manchester

55:401-572 (Aug.) 1948

Investigation and Treatment of "Border-Line" Cases of Contracted Pelvis. J. M. M. Kerr.—p. 401.

Pregnancy Associated with Septate Uterus, Double Vagina and other Congenital Abnormalities. Jean R. C. Burton-Brown.—p. 418.

Further Case of Stromal Endometriosis. W. W. Park and R. A. Tennent.—p. 423.

Angina of Effort in Pregnancy (Report of Case). A. Schott.—p. 428.

Heart Block and Pregnancy: Review. R. Mowbray.—p. 432.

Congenital Complete Heart Block Complicating Pregnancy (Report of 3 Cases). R. Mowbray and C. C. Bowley.—p. 438.

Vernix Caseosa and Subnormal Temperature in Premature Infants. C. Saunders.—p. 442.

*Thoracoplasty and Pregnancy—with Special Reference to Childbirth (Preliminary Report). J. P. McIntyre.—p. 445.

Prediabetic Pregnancy. H. H. F. Barns and M. E. Morgans.—p. 449.

Pneumo-Pyosalpinx. R. W. K. Purser and J. Young.—p. 455.

Spina Bifida Occulta and Nulliparous Prolapse (With Notes on Incidence of Certain Abnormalities of Sacrum). A. A. Gemmell, P. H. Whitaker and R. L. Plackett.—p. 459.

*Erythrocyte Sedimentation Velocity in Normal Pregnancy. E. Obermer. —p. 464.

Placenta Praevia Accreta. W. N. Chisholm.—p. 470.

**Thoracoplasty and Pregnancy.**—McIntyre studied the influence of thoracoplasty on pregnancy, particularly delivery, in 12 women. There were 7 multiparous and 5 primiparous patients. A two stage, seven rib thoracoplasty was performed on each patient included in this study. With one exception, this operation was done on the left side of the chest. Except for 1 patient who received this operation when she was three and one-half months' pregnant, the interval between thoracoplasty and pregnancy varied from one to ten years. The average duration of labor was fifteen hours and fifteen minutes. Instrumental delivery was performed in 6 patients. Slight dyspnea was observed in 2 patients toward the end of the second stage of labor. The placenta in each instance was expelled complete and no excessive bleeding or puerperal sepsis occurred. Observations on these patients indicate that the occurrence of distressing dyspnea during labor after thoracoplasty is largely hypothetic and that interruption of pregnancy is not indicated in these women. Advice regarding pregnancy in patients with thoracoplasty cannot be given without reservation. Sufficient time should elapse to insure healing of the lesion before permitting pregnancy. Given a patient, however, with tuberculous lung lesions adequately and anatomically collapsed by thoracoplasty, coexisting pregnancy need not necessarily be regarded as a severe imposition on the maternal organism.

**Erythrocyte Sedimentation Rate in Pregnancy.**—Obermer describes the procedure which he used for the determination of the sedimentation rate of erythrocytes and gives figures obtained in 283 determinations on 88 healthy pregnant women and in 1 in whom the fetus had died in utero about the thirty-fourth week. In the majority of normal pregnant women sedimentation velocity increases slightly as early as the fifth or sixth week; from the eighth week onward there is a regular increase in the velocity, up to a maximum at the fortieth week; after labor the velocity falls steeply. In four weeks the sedimentation declines to almost normal values and at the end of eight weeks the normal values of the nonpregnant state are reached. Curves plotted from the values obtained in the woman whose fetus died in utero at about the thirty-fourth week show a steep fall in the velocity at the thirty-seventh week (practically to the normal level for the nonpregnant state). There were no clinical grounds for suspecting any abnormality in the pregnancy.

### Lancet, London

2:361-400 (Sept. 4) 1948

Accidental Intra-Arterial Injection of Drugs. S. M. Cohen.—p. 361.

*Transorbital Leukotomy. W. Freeman.—p. 371.

Incontinence of Urine in the Aged. T. S. Wilson.—p. 374.

Spontaneous Rupture of Rectum: Report of Case. C. P. Allen.—p. 378.

Congenital Torticollis in Identical Twins. A. E. Stevens.—p. 378.

**Transorbital Leukotomy.**—Freeman points out that less than a year after the introduction of leukotomy by Moniz in 1936, Fiamberti proposed a simplified operation on the frontal lobes by way of the orbital plates. Freeman's studies on cadaver in 1945 confirmed the fact that the orbital plate could be easily perforated without danger to structures within the orbit and without encountering large intracranial vessels and that the thalamofrontal radiation could be severed fairly far anteriorly without disturbance of the cortex except to a minimal degree. Early in 1946, 10 patients were subjected to transorbital leukotomy with encouraging results. Two years later 6 of them were fully restored and only 1 was in hospital. The series has been extended since then to more than 100 cases in various mental hospitals. It has been demonstrated that frontal leukotomy can be performed safely and effectively by the transorbital route of Fiamberti during the phase of coma following electroshock. Recovery may be rapid and undesirable changes in personality are minimal. The operation is a minor one and may be performed by the psychiatrist provided he has thoroughly familiarized himself with the technic and landmarks through previous practice on the cadaver. The operation has been most effective in certain patients in whom tension was a prominent feature of the illness and whose illness was becoming chronic in spite of more conservative therapies.

### Medical Journal of Australia, Sydney

2:113-140 (July 31) 1948

Rh Blood Types in Australian Aborigines. R. T. Simmons and J. J. Graydon.—p. 113.

*Aneurysms of Splenic Artery, with Report of 2 Cases and Review of Literature. J. I. Tonge.—p. 119.

Urinary Excretion of 17-Ketosteroids and of Corticosteroid-Like Hormones by Newborn Infant. E. M. A. Day.—p. 122.

*Thiamine in Pink Disease. E. H. M. Stephen.—p. 124.

**Aneurysms in Splenic Artery.**—Tonge presents 2 cases of aneurysms of the splenic artery. The literature contains reports of 145 cases. Arterial degeneration, congenital defects of the vessel wall and endocarditis seem to be the most likely etiologic factors. Syphilis, trauma, splenomegaly, increased portal pressure and periarteritis nodosa are comparatively rare causes. The association of pregnancy with the formation of these aneurysms is more apparent than real. The clinical features vary according to whether rupture has occurred or not. Even in the former case, the clinical picture is not clearcut, as the aneurysm may rupture by a single or "two stage" process. The outlook is usually rather poor. Before rupture of the aneurysm, the treatment of choice is splenectomy with removal of the segment of the splenic artery from which the aneurysm has arisen. After rupture, heroic surgery and blood transfusion are needed. A case of twin aneurysms occurring in the splenic artery of a single woman is reported. Fatal hemorrhage from rupture of one of these aneurysms occurred during exploratory laparotomy. The second case report is of the rupture of an aneurysm of the splenic artery in an elderly man, which occurred while he was undergoing treatment for congestive cardiac failure. This rupture was of the "two stage" variety.

**Thiamine in Pink Disease.**—Stephen says that in the past he had treated pink disease (erythredema polyneuropathy) with oral administration of adequate doses of vitamin B preparations. He observed the prompt response resulting from intramuscular injection of thiamine in a patient treated by Dr. Dalton. He employed a preparation that contains 50 mg. of thiamine per cubic centimeter and injected intramuscularly every fourth day 3 minims (0.18 cc.) of this solution. The 8 patients in whom this treatment was employed made a satisfactory progress.

## Acta Medica Orientalia, Jerusalem

7:33-60 (March) 1948

*The Psychosomatic Concept. F. Deutsch.—p. 33.
Re-Infection or Recurrence in Leishmaniasis Cutis (Oriental Sore)? F. Raubitschek.—p. 43.
Multiple-Pressure and Scratch Method of Vaccination. K. Chrysanthis. —p. 46.
Revision of Freud's Theory and Method? D. Dreyfuss.—p. 49.

**The Psychosomatic Concept.**—Deutsch surveys opinions on the psychosomatic concept. Psychosomatic medicine is the systematized knowledge of how to study bodily processes which are fused and amalgamated with emotional processes of the past and the present. Certain personalities can be related to certain psychosomatic disorders. The author discusses the psychosomatic aspects of asthma, rheumatoid arthritis, atopic dermatitis, peptic ulcers and colitis. He stresses that understanding the personalities involved in psychosomatic disorders can prevent a wrong approach to the patient. The anticipation of the kind of behavior which the patient will show toward the persons who treat and handle him can be of great value. It can protect the physician against showing an inadequate response to the behavior of the patient, because in understanding the personality pattern he will not take this behavior pattern at face value, since it has unconscious motivation and is a symptom of the disease.

## Archives Françaises de Pédiatrie, Paris

5:225-336 (No. 3) 1948

*Congenital Transplacental Tuberculosis of Icteric Form. R. Debré, Mrs. Furiet-Laforet and P. Royer.—p. 225.
Research on Dehydration and on Ratio of Some Electrolytes in Blood and Urine of Dyspeptic Infants. P. Rohmer, R. Sacrez, Miss Leroux and M. Lagoutière.—p. 332.
Duodenal Ulcers and Pseudo-Ulcerous Duodenal Bulbitis in Children of School Age. J. J. Dubarry.—p. 240.

**Congenital, Transplacental, Icteric Tuberculosis.**—Debré and his co-workers report a case of congenital, transplacental, icteric tuberculosis in an infant aged 6 weeks who was hospitalized because of icterus and hepatosplenomegaly. There was choluria, fever and poor general condition. The feces were not discolored. Examination of the blood showed lowering of the cholesterol esters, reduced proteinemia and prothrombinemia. The father of the infant was in good health but the mother had severe bilateral pulmonary tuberculosis of eight years' duration. Koch's bacillus was observed in her sputum in the fourth month of pregnancy. Delivery was uneventful and the infant was separated immediately from the mother, who never saw or embraced him. Jaundice was observed in the infant during the first days of life. At the age of 1 month the infant vomited and lost weight. He died six days after admission to the hospital. Necropsy revealed a large number of tubercles in the lung with many acid-fast bacilli. The pedicle of the liver was thickened and consisted of a conglomeration of enlarged lymph nodes. Whitish-yellowish granulations were disseminated in the parenchyma of the lungs, in the liver and in the spleen. The conclusion seems to be warranted that death of the infant resulted from hepatosplenic icterogenic tuberculosis of congenital origin. The disease of the mother, the nature of the anatomic lesions and the abundance of acid-fast bacilli on the sections left no doubt concerning the tuberculous nature of the disease. The removal of the infant from the mother immediately after the delivery, the early manifestations of the disease during the first days of the life of the infant, the essentially splenohepatic and pulmonary distribution of the lesions and the characteristic caseation of the lymph nodes at the liver hilus confirm the congenital nature and the transplacental origin of this tuberculosis, although the placenta was not examined microscopically.

## Bruxelles-Medical, Brussels

28:1977-2032 (Sept. 26) 1948

*Convulsive Eclampsia in Its Relationship to Diencephalon: Therapeutic Trial with Intravenous Procaine Hydrochloride. H. Ezes.—p. 1987.
Receptiveness of Nervous System to Infection. Le Fèvre de Arric. —p. 1998.

**Procaine Hydrochloride in Eclampsia.** — According to Ezes, in pregnant women endocrine disorders may affect the vegetative centers of the diencephalon. In cases of mild disease this involvement may be manifested by functional disturbances of a peripheral organ such as the kidney, and, in grave, by convulsive attacks. The sympatheticotonic hormones are predominant in the eclamptic patient. The concept of eclampsia as a labile, temporary, functional disturbance of the neurovegetative system, probably of the diencephalon, caused by substances which exert a sympatheticotonic effect, suggested the use of a sympathicolytic treatment. Accordingly, 6 women with eclampsia were treated by intravenous administration of procaine hydrochloride. In 1 of these patients a convulsion took place eleven hours after the birth of her fourth child; it was followed by coma. There was a rise in the arterial pressure and papilledema. Both arterial and retinal pressures were reduced by the intravenous administration of 10 cc. of a 1 per cent solution of procaine hydrochloride without epinephrine. Convulsive attacks did not recur, and vision improved after a second injection of this solution. The number and the intensity of the convulsions were influenced favorably by procaine hydrochloride in the 5 other patients, 4 of whom had convulsions during pregnancy and 1 had convulsions during labor. In 3 of the 5 the eclampsia was primary and was controlled more rapidly than in the 2 others, in whom the convulsive attacks were preceded by a preeclamptic state. This treatment is indicated particularly for primary eclampsia during labor and post partum. In other instances it should be combined with other measures directed at the control of exogenous factors.

## Cirugía del Aparato Locomotor, Madrid

5:289-376 (July) 1948. Partial Index

*Study on Presence of Poliomyelitic Virus in Muscles of Mice Inoculated with SK Virus in Preparalytic Period of Poliomyelitis. J. Sanz Ibáñez. —p. 319.

**Poliomyelitic Virus in Inoculated Mice.**—Sanz Ibáñez produced paralysis in two groups of mice given intraperitoneal inoculation of a suspension of either brain or of leg muscles of mice from an original group in which mice were killed at different hours after inoculation with poliomyelitis virus. Mice in the original group did not show any symptom of the disease at the time they were killed. In mice in the two groups poliomyelitic paralysis developed either on the sixth day after inoculation when the material used was that of animals which had been killed four hours after inoculation, or on the third day when the material was that of animals which had been killed sixty-three or sixty-seven hours after inoculation. The results of the experiments show: (1) the presence of the virus in the brain and in the leg muscles of inoculated mice in the original group as early as four hours after inoculation, and (2) that the period of incubation and of appearance of paralysis in animals of the second and third groups shortens in relation to greater number of hours of life of the original group after inoculation.

## Deutsche medizinische Wochenschrift, Stuttgart

### 73:305-356 (Aug. 13) 1948. Partial Index

*Carcinoma of Prostate and Its Treatment with Hormones. E. Wildbolz. —p. 305.
Clinical and Bioptic Investigation on Acute Dystrophy of Liver, on Coarse Nodular Atrophy and on Liver Coma After Epidemic Hepatitis. H. Kalk.—p. 310.
Reliability of Ehrlich's Aldehyde Test for Urobilinogen as Liver Function Test. J. Münzenmaier.—p. 315.
Problems of Pathology of Liver. W. Eger.—p. 317.
*Essential Hypertension of Pulmonary Circulation and Its Familial Incidence. F. Lange.—p. 322.

**Hormones for Carcinoma of Prostate.**—Wildbolz treated 61 patients with carcinoma of the prostate by daily oral administration of 5 mg. of diethylstilbestrol in tablets. The drug was tolerated well by nearly all patients. A few had vertigo and rash and were given intramuscular injections of alpha-estradiol dipropionate. Results were satisfactory in 30, who showed considerable clinical improvement, having no difficulty or pain. There was moderate improvement in 8; 7 were failures, and in 16 the follow-up was too short for any conclusions. In patients with satisfactory results treatment must be continued for the rest of their lives in order to prevent recurrences. These may occur in spite of continued treatment, and in these cases administration of estrogenic substances may be combined with castration. In patients in whom castration has been performed prior to treatment with estrogenic substances, this latter treatment may be practiced in case of recurrence, and again clinical improvement may result. While administration of estrogenic substances neutralizes the male sex hormones, castration prevents their formation. It has been established by five years' experience with estrogenic substances that a cure cannot be obtained with estrogenic substances alone and that satisfactory results are temporary only. Hormone therapy, therefore, should not be instituted at once after diagnosis of carcinoma of the prostate has been made. Radical perineal prostatectomy is suggested, for carcinoma in the early stage and repeated transurethral resection without administration of estrogenic substances may be sufficient in patients whose only symptom consists of retention of urine. Administration of estrogenic substances may be instituted in patients with rapidly progressing carcinoma, with pain due to metastasis and rapid deterioration of the general condition. Experience suggests that administration of estrogenic substances may increase the duration of survival.

**Hypertension of Pulmonary Circulation.**—Lange reports 1 case of essential hypertension of the pulmonary circulation in a woman aged 54 with edema of the lower extremities and cyanosis of the face, hands and feet. Dyspnea was almost absent. The blood pressure was low. The number of red blood corpuscles was increased to 5,200,000. There was a loud systolic murmur over the aorta and the secondary pulmonary sound was accentuated. Auricular flutter and retardation on the right side with corresponding disturbance of potential were revealed by the electrocardiogram. Death occurred from heart failure in a few seconds. Excessive hypertrophy and dilatation of the entire right side of the heart were revealed on necropsy. There were few vascular changes in the lungs, with hyperplasia of connective tissue of the intimal layer of the median and small arteries. The carotid gland was increased considerably on both sides. The systolic murmur over the apex of the heart and over the pulmonary artery was not caused by organic changes of the cardiac valves, but by dilatation of the rings of the valve resulting from the dilatation of the decompensated heart. The clinical aspect and the anatomic observations were similar to those described by Romberg for which the term primary pulmonary sclerosis was coined. The morphologic changes in the walls of the pulmonary vessels, however, did not correspond with the excessive hypertrophy of the right heart. It is possible that a functional rise of blood pressure in the pulmonary circulation is responsible for the changes in the pulmonary vessels and for the hypertrophy of the heart. For this condition the term essential hypertension of the lesser circulation is suggested in analogy to that of the greater circulation. This partial essential hypertension may be familial. The author examined 42 members of a family of 186 whose genealogic tree could be followed back to 1729. Eighty-two of the 186 relatives presented a reddish blue discoloration of the skin. Thirty of the 42 examined persons had this discoloration of the skin, and 10 of them presented a loud second pulmonary sound. Thirteen of 18 adults presented considerable enlargement of the conus arteriosus. As a result of this enlargement the left auricle was displaced upward so that it formed an upward edge. This anomaly, and the cyanosis, became manifest only after puberty. In the majority of the members of the family the electrocardiogram did not show any definite changes. The blood pressure was normal in all, except for 3 who presented a hypertrophy of the left in addition to that of the right side of the heart, suggesting essential hypertension of the systemic circulation in addition to that of the pulmonary circulation. Although these two conditions do not depend on one another, they may occur simultaneously.

## Schweizerische medizinische Wochenschrift, Basel

### 78:845-868 (Sept. 4) 1948. Partial Index

*Significance of Electromyography and Electroencephalography in Diseases of Extrapyramidal-Motor System. K. Hartmann and M. Monnier. —p. 845.
Supporting Pad Treatment for Static Disorders of Foot. H. Feriz. —p. 850.
Lyspamin and Some Additional New Derivatives of Nicotinic Acid. H. Suter.—p. 853.

**Electromyography and Electroencephalography in Motor Disturbances.** — Hartmann and Monnier report 4 patients, 1 woman aged 40 with postencephalitic parkinsonism and 3 men aged between 44 and 71 years with postencephalitic parkinsonism associated with rigor and tremor, with degenerative disease of basal ganglions associated with tremor in the absence of rigor, and with choreiform twitching of the fingers and the shoulder associated with postapoplectic right hemiplegia respectively. Electromyographic and electroencephalographic recordings were made in these 4 cases before the administration of the new spasmolytic "parpanit" (diethylaminoethyl-1-phenylcyclopentane-1-carboxylate hydrochloride) and twenty-five to fifty minutes after the subcutaneous administration of 0.05 Gm. of this drug. The study of the bioelectric phenomena in the muscles and in the brain revealed that in case of rigor asynchronous electric activity occurs only after a certain lapse of time during voluntary movements and continues after muscular relaxation. "Parpanit" causes a more rapid occurrence of asynchronous activity during voluntary movements, and it disappears more rapidly at the end of the muscular action. Clinical improvement of the motility corresponds with this "normalization" of the electromyogram. In cases of tremor with rigor the electromyogram is characterized by groups of synchronous discharges whose frequency may be six to eight seconds and whose amplitude increases during voluntary movements. These discharges may be overbridged by the gradually occurring asynchronous activity; that corresponds with the clinical observation that the tremor decreases during voluntary movements. Under the influence of "parpanit" the amplitude and the duration of the rhythmic discharges decrease; after muscular relaxation they even may disappear completely for some time. The tremor without rigidity in degenerative diseases of the basal ganglions does not differ electromyographically from that of patients with Parkinson's disease. The electromyogram of choreiform unrest after postapoplectic hemiplegia is characterized by rhythmic discharges of low frequency (2.5 seconds). They may become manifest only with voluntary muscle contraction. Their amplitude increases considerably under the influence of "parpanit." These differences indicate that the genesis of postapoplectic choreiform motor unrest and of Parkinson's tremor is not identical. The electroencephalogram of patients with postencephalitic parkinsonism reveals a deficient blockage of the alpha rhythm by light acting as stimulus, and deficient coordination of the electric activity of both hemispheres of the brain. Abnormally slow rhythm may occur occasionally. The improvement of these phenomena resulting from the administration of "parpanit" may correspond clinically with an attenuated bradyphrenia. There is no relationship between the rhythm of the electroencephalogram and that of the electromyogram. The apparent coordination of the two rhythms is merely an artefact which is caused by the tremor of the frontal and temporal muscles.

# Book Notices

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**Anatomy of the Human Body.** By Henry Gray, F.R.S. Twenty-fifth edition, edited by Charles Mayo Goss, M.D., Professor of Anatomy, Louisiana State University School of Medicine, New Orleans, La. Fabrikoid. Price, $14. Pp. 1478, with 1263 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1948.

This book has been known to generations of medical students and practicing physicians, and this new edition retains the familiar aspect; even the cover has been changed from maroon in the previous edition to the dark green cover of former years. The present editor is Dr. Charles M. Goss, professor of anatomy at Louisiana State University School of Medicine, New Orleans; however, the six associate editors of the previous edition again contribute chapters, and their work has been left almost intact. This statement applies also to the former editor-in-chief, Dr. Warren H. Lewis, and refers particularly to his work on embryology.

The text has been revised and illustrations replaced or added where research has offered new material. The illustrations, which have always been excellent, are even more outstanding in this edition, as is the text, apparently because a better grade of paper was used. The list of references at the end of the chapters is more extensive and, while designed to stimulate the interest of the student in further reading, many of the references may be used to authenticate statements in the text.

When Henry Gray, a lecturer on anatomy at St. George's Hospital Medical School in London, published the first edition of this book in 1858, it covered 750 pages and contained 363 figures. The present edition, published ninety years later, covers 1,478 pages and contains 1,263 illustrations. Gray was 31 years of age when this book first appeared. His career of great promise was rapidly cut short when he contracted smallpox while he was caring for a nephew who had that disease.

***The Psychology of Abnormal Behavior: A Dynamic Approach.*** By Louis P. Thorpe, Ph.D., Professor of Education and Psychology, the University of Southern California, Los Angeles, and Barney Katz, Ph.D. Cloth. Price, $6. Pp. 877, with illustrations. The Ronald Press Co., 15 E. 26th St., New York 10, 1948.

This book addressed to undergraduate students is a comprehensive, although simplified, presentation of the subject. It succeeds in its attempt to be both dynamic and eclectic, and its format, typography and figures are such that even beginning students will find it easy reading. The authors go beyond the descriptive level and give an excellent formulation of the background dynamics currently held for each of the subjects which are discussed. There are well chosen and typically representative cases which illustrate the various syndromes. The necessarily simplified and condensed discussion of the wide scope of material surveyed is expanded by an up-to-date bibliography as well as separate case, author and subject indexes. The authors have expanded the text's usefulness further by the inclusion of 44 tables of relevant statistics and lists of other pertinent data. There is a most helpful 19 page glossary of technical terms. The contents are presented in eight parts, and, despite an 877 page bulk, it is a book which can be recommended to students of the psychology of abnormal behavior.

**Methods of Vitamin Determination.** By B. Connor Johnson, Associate Professor of Animal Nutrition, Division of Animal Nutrition, University of Illinois, Urbana, Illinois. Paper. Price, $3. Pp. 109, with 19 illustrations. Burgess Publishing Co., 426 S. 6th St., Minneapolis, 1948.

This book presents a detailed outline of the assay methods used in the determination of vitamins in food and biologic substances. The principles of the microbiologic, colorimetric and fluorometric methods of analyses are explained in two chapters. There is no complete description of the vitamin or a detailed list of its chemical and physical properties. Nevertheless, this handy laboratory manual lists in detail satisfactory assay procedures for sixteen vitamin and vitamin-like substances, with a short chapter on the amino acids. Wherever applicable, the biologic, chemical, microbiologic and physical methods are described in detail for the vitamin. The specific limitations of the procedure and the influence of interfering substances on the assay methods of vitamins are not fully described. Emphasis has been placed on microbiologic and chemical methods.

**Vaccination par le B.C.G. par scarifications cutanées.** Par L. Nègre et J. Bretey, chefs de service à l'Institut Pasteur de Paris. Préface du Professeur A. B. Marfan. Second edition. Paper. Price, 180 francs. Pp. 115, with 10 illustrations. Masson & Cie, 120 Boulevard Saint-Germain, Paris $6^e$, 1947.

The book deals with the transcutaneous method of BCG vaccination introduced by S. R. Rosenthal. From an experimental study in animals and human beings, the authors verify the efficacy of this method as far as the rapidity of developing a positive tuberculin reaction is concerned and in its protection against a virulent reinfection. But, as Professor Marfan stated in the preface, to judge the value for the human species of a method of premunition against tuberculosis a very long period is required; however, the results already obtained justify every hope. Reviewing the various other methods used for BCG vaccination, the authors point out that after oral administration the percentage who reacted to tuberculin after vaccination to 30 mg. of the organism is low, around 30 per cent, whereas by the subcutaneous and intradermal methods the conversion is high, up to 100 per cent. The complications of ulcers and abscesses are so frequent that the popularity of BCG vaccination may be undermined.

In France, where BCG vaccination first began, the procedure was losing its popularity since the oral method had been used for the main part and the conversions were so low.

Experimentally in guinea pigs the intradermal, subcutaneous and transcutaneous methods were compared, and it was found that after the transcutaneous method antituberculosis resistance is established by the ninth day, progresses to the twentieth day and remains at that level for thirty to forty-five days. Three years after vaccination, the guinea pigs still have a manifest resistance against tuberculosis but not as pronounced as after one to two years. As compared with the other two methods, immunity appeared sooner and lasted longer.

In infants, the reaction to tuberculin after vaccination disappears after two and one-half to three and one-half years when 20 mg. per cubic centimeter suspension is used. When a 50 mg. per cubic centimeter suspension is used, the reactions to tuberculin persist for three to three and one-half years. To augment further the duration of the reaction to tuberculin, 75 mg. per cubic centimeter is now used.

The authors recommend scarifying with the usual type of scarifier used in France for vaccinia. This looks like a pen point with one sharp edge. Varying with the age of the child, crosslike scarifications 0.5 cm. long are made through a drop of vaccine; two such crosses are made in newborn infants to ten in adults. After a few seconds, slight bleeding will occur. A small piece of gauze saturated in the vaccine is then placed over the scarified areas and left there for twenty-four hours. At present double hatches are made 1 cm. apart and 1 cm. long. In some children, as many as 4 such double hatches are made. This method is preferred in France to the multiple puncture method as recommended by Rosenthal, since the average practitioner has been using the scarifier for vaccinia for a long time. Rosenthal says that when the multiple puncture method was used with thirty punctures made over an area of 3½ by 1 cm. and with a vaccine 15 mg. per cubic centimeter, 99.7 per cent positive reactors were obtained in newborn infants, who continued to react to tuberculin to the extent of 90 per cent after four to four and one-half years. No dressings whatsoever were used.

Some 70,000 vaccinations by the transcutaneous method (scarifying) have now been performed in France. There have been practically no complications following the method except for occasional lymph node enlargements and a rare local accumulation of pus.

With the mounting interest in BCG vaccination in this country, the method of applying the vaccine should become the interest of those who are to use it. This book presents both experimental and clinical evidence that the transcutaneous method of vaccination is one of choice since it is easy to apply, is practically devoid of complications and produces an earlier and more lasting resistance against virulent reinfection.

**The Nursing of Tuberculosis.** By O. V. Buxton, S.R.N., and P. M. Macculloch Mackay, S.R.M.N. With a foreword by Richard R. Trail, M.C., M.D., F.R.C.P. Cloth. Price, $2. Pp. 124, with 23 illustrations by Nora Lewis, S.R.N. Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2; John Wright & Sons, Ltd., 42-44 Triangle West, Bristol 8, England, 1947.

This book was prepared for graduate and student nurses engaged in the care of tuberculous patients. Its main object is "to enable nurses to give the person suffering from tuberculosis all the care that is necessary to promote recovery wherever possible and to maintain the 'chronic' case in as comfortable a state as circumstances allow." The first four chapters are devoted to etiology, variations of the disease, pathology and anatomy of the chest. These are discussed briefly so as to give the nurse a general understanding of them. In chapter 5 the symptoms of pulmonary tuberculosis are related, and their treatment is presented in chapter 6. In the two succeeding chapters the sanatorium regimen is presented and special methods and remedies are discussed. A short chapter is devoted to the psychologic aspects of tuberculosis. Various forms of collapse therapy are presented, with special emphasis on the role of the nurse in each of them. Complications of pulmonary tuberculosis and associated diseases are discussed adequately. A chapter on special tests includes the technic of examining sputum, urine, pleural fluid, cerebral spinal fluid and feces. The tuberculin skin test, blood sedimentation rate and vital capacity determination are also presented in this chapter.

Extrathoracic tuberculosis, particularly that involving bones and joints, lymph nodes and the genitourinary system, is included. Under prevention it is pointed out that tuberculosis is spread in two ways: one, by dissemination of bacilli from persons with contagious disease to those in contact with them, and, two, by contaminated milk. Methods of preventing such dissemination are outlined. The authors state that "until some vaccine is discovered which will protect the body against the infection, the most we can do is to increase the resistance of the individual so that his body is able to withstand the invasion of the bacillus when it attacks him." Rehabilitation of the tuberculous is well presented in the last chapter.

The authors assume that in England nearly everyone becomes infected with tubercle bacilli. This is in sharp contrast to the present situation in the United States, and therefore the method of approach in tuberculosis control differs somewhat in the two countries. Aside from such differences, the fundamental knowledge contained in this book is useful to nurses everywhere.

**Give Them a Chance to Talk: Handbook on Speech Correction for Cerebral Palsy.** By Berneice R. Rutherford. Paper. Price, $2.75. Pp. 116, with illustrations. Burgess Publishing Co., 426 S. Sixth St., Minneapolis 15, 1948.

This book is eminently practical. Chapters on "Description of Cerebral Palsy," "Description of Speech Differences," "Background of Speech Therapy," and "Problems of Personal Adjustment" are included. It is written in nontechnical language. A certain paucity of detail in one or two chapters presupposes some previous knowledge of the subject on the part of the reader. Chapters on "Therapy for the Development of Speech" and "Special Problems in Speech Therapy" are excellent. Many suggested procedures and exercises will be helpful in working with children having cerebral palsy and with other speech sufferers. Visual and kinesthetic as well as auditory cues are stressed. Interesting diagrams illustrate points discussed in the text.

Since the material is so practical and well presented another edition, expanded somewhat and in better dress, would be desirable.

**Medical Advisors Manual, The American Legion.** Paper. Pp. 96. National Public Relations Commission, The American Legion, 1608 K St., N.W., Washington, D. C., 1948.

As its title indicates, this booklet is a manual for medical advisers published by the American Legion. It is a guide to the Veterans Administration and to other factors which influence the treatment of the sick or disabled veteran. The Ten-Point Program of the American Medical Association is reprinted in full. The medical advisers to the Legion are given many responsibilities. There are ten points under the aims and purposes of the National Advisory Board, eleven points under a similar tabulation of suggested responsibilities and duties of the department (state) medical adviser and thirteen more for the post medical adviser. An interesting statement occurs in the introductory paragraph of the section on the department medical adviser: "Matters of health and education fall into the category of state's rights. Hence, even in a national campaign for health, the key to success must be found in each state. The golden key for your department is in your hands" (page 16, paragraph 1). The pamphlet contains much varied information on rehabilitation, medical education, psychiatry, medical rehabilitation, postwar surgery, conditions which may need care (a list two pages long of conditions which may affect war veterans), dentistry, heart disease and child welfare. Its interest to physicians lies in the information which it contains on the point of view of the American Legion with regard to matters affecting the medical care of veterans. For medical advisers to Legion posts and departments, it constitutes a guide and manual of procedure.

**Atlas of Dermal Pathology.** Prepared [at the Army Institute of Pathology] by the Registry Committee on Dermal Pathology of the American Academy of Dermatology and Syphilology, Hamilton Montgomery, Chairman. Fabrikoid. Price, $5. Pp. 155, with 100 illustrations selected by Arthur C. Allen, Consultant to the Army Institute of Pathology. Registry Press, American Registry of Pathology, under the Auspices of the National Research Council, Army Institute of Pathology, Washington 25, D. C., 1948.

The material in this short atlas has been limited to illustrations of one hundred dermatologic entities with distinctive histologic pictures. They are all photomicrographs in black and white, excellently reproduced on good quality paper. Each illustration is accompanied by a short clinical history and a clear description of the salient features of each section. The book contains an excellent glossary of pathologic terms, a practical classification of the material and references to pertinent literature. Intended, as it is, merely to supplement standard texts on histopathology, the book should be of value particularly to the physician interested in dermatology. Colored illustrations would have added considerably to the value of the book.

**Human Histology: A Guide for Medical Students.** By E. R. A. Cooper, M.D., Reader in Histology, University of Manchester, Manchester, England. With a foreword by F. Wood Jones, F.R.S., F.R.C.S., Sir William Collins, Professor of Human and Comparative Anatomy at the Royal College of Surgeons of England. Second edition. Cloth. Price, 27s. 6d. Pp. 431, with 257 illustrations. H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C. 1, 1948.

Designed to meet British medical examination requirements, this book offers the student a laboratory manual illustrated from the author's teaching collection. Almost all the figures are original photomicrographs of good quality. There are no careful or detailed drawings illustrating cytologic details. The text is similarly elementary, furnishing a brief description of the major morphologic aspects of the tissues with the functional aspects minimized. There are few references to diverging points of view, and the major unresolved problems of histology are avoided. Presumably the results of experimental approaches to histologic problems and the findings of newer technics in microscopy are intended by the author to be covered in collateral lectures, since there are no references to them in the text and the bibliography consists of 20 titles. As a refresher guide for the examinations, the text is a lucidly written compendium, but it is difficult to find a place for it on a reference shelf.

**The Treatment of Malignant Disease by Radium and X-Rays: Being a Practice of Radiotherapy.** By Ralston Paterson, M.C., M.D., F.R.C.S.E., Christie Hospital and Holt Radium Institute, Manchester. Cloth. Price, $11. Pp. 622, with illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

The details of the physics and technical aspects of radiotherapy are clearly described. In attempting to be complete, the author in several instances has discussed in too great detail methods which are cumbersome or are generally accepted as outmoded; this may be confusing to the inexperienced student of radiotherapy. The results of the methods which the author advocates are not presented in this volume. A discussion of the organization and staffing of a tumor institute and a report on the new horizons in radiotherapy are presented. This book is a valuable contribution to the literature on radiotherapy.

# Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

## INDICATIONS FOR CESAREAN SECTION

*To the Editor:*—One of the members of our hospital staff, which is composed entirely of general practitioners, proposed to do a cesarean section on a para VII for the purpose of sterilizing her. Other indications for section were absent. Another physician and I saw the patient as consultants and found no indications for the operation. It was therefore not done. It occurs to me, however, that section for this purpose does not seem too far fetched in this day of antibiotics, blood banks, good laboratory facilities and other modern supportive measures. With these aids it would also seem preferable to do sections rather than difficult forceps deliveries, such as are necessary in some patients with occiput posterior position. Has any authoritative obstetric body recently reviewed the indications for cesarean operations? In our hospital most of us allow the second stage of labor to end spontaneously except for necessary episiotomy or the Ritgen maneuver. What is the common practice in this regard? Does the use of pain-relieving agents (including heavy "nupercaine hydrochloride" spinal anesthesia) make spontaneous delivery increasingly difficult? Is heavy "nupercaine hydrochloride" spinal anesthesia safe for obstetric anesthesia in a small general hospital? M.D., Illinois.

ANSWER.—This letter poses some basic questions which many doctors have thought about. The basic aim in obstetrics is to end up with a whole live mother and a normal healthy baby. One reads of glorious results with this or that analgesic or method of treatment only to find that within a few months the method is forgotten by all, even the authors, but with no retraction in the literature. The lag in publication today is so great that often by the time an article is published, the authors have already stopped using the method.

One should always ask oneself when doing a major procedure, "If the patient should die, would I have been justified in doing the procedure?" This does not mean that all elective surgical treatment should be dispensed with or that women should be allowed to labor with undue odds merely because of operative mortality rates, because sometimes life in these circumstances is worse than death, but it does mean that in spite of modern advances women still die from cesarean section, especially when done by the occasional operator. One cannot compare the mortality figures of a busy obstetrician in a large maternity ward with good anesthetists and blood banks to those of an obstetrician who does one or two sections a year in adverse circumstances. Perhaps, also, one should not use the same criteria for their operative work.

The first question is controversial only in one respect. No one believes in cesarean section for sterilization. The nearest approach is the postpartum sterilization in which the mother is taken to the operating room on the second postpartum day and through a small abdominal incision the tubes are tied. The main reasons offered by the proponents of this method are that the women will not come back for sterilization at a later date. With modern methods of contraception, this should be unnecessary. It is much less hazardous to tie off the vas in the husband than to do a major abdominal operation on the wife. Sterilization in the woman is almost irreversible, even though it fails occasionally, while in the man it can be undone in a fair percentage of cases.

Our criteria for section should be relaxed somewhat. With the advent of roentgenographic pelvimetry, some of the difficult labor experiences would be better terminated by section. Roentgenographic pelvimetry frequently takes all of the fear out of handling occiput posterior positions by indicating in what diameter the head should be brought through.

The sulfonamide drugs and the antibiotics, if used, should be given in sufficient dosage to subdue the infection adequately. If possible, it is better to wait long enough before using them to find out what is causing the fever.

While the trend seems to be toward routine low forceps or outlet forceps or prophylactic forceps deliveries, the difficulty is in determining what is a low forceps delivery. Outlet forceps technics are safe enough so that they should be applied if there is any question about the fetal heart or if the mother has had a long tedious labor.

Apparently no authoritative body has recently reviewed the indications for cesarean section. Such a move is on foot, however, in the question of forceps. Most authors of papers on various types of spinal anesthesia admit that practically all of their cases become operative cases because of the great relaxation caused in the pelvic and perineal structures. This has the effect of increasing the mortality and morbidity statistics in the operative group.

As long as analgesics work as well as they now do, and with local infiltration for episiotomy and inhalation gas anesthesia for delivery, there is no reason to add spinal anesthesia, because it is not without danger, in spite of reports to the contrary.

## PENICILLIN IN NEUROSYPHILIS

*To the Editor:*—What is the effect on: (1) tabes and dementia paralytica of a daily dose of 300,000 units of procaine (crystalline) penicillin G in water to a total of 20,000,000 units; (2) effect of this dosage on penicillin blood levels, and (3) effect of this dosage plus carinamide on penicillin blood levels? M.D., Pennsylvania.

ANSWER.—1. The effectiveness of treatment by daily injections of procaine penicillin in the treatment of dementia paralytica and other forms of syphilis of the central nervous system is under investigation at the present time in several medical centers, but the duration of the studies has not yet been sufficient for reports of results to be made. None of the schedules being tried covers such a long period of time (sixty-six days) as the proposed schedule. So far no penicillin schedules for syphilis of the central nervous system involving relatively continuous penicillin blood levels have been advocated that are longer than twenty-one days. Treatment with penicillin in peanut-oil-beeswax is similar to that with procaine penicillin in that relatively lower and fewer peak levels are obtained than with aqueous solutions of penicillin, although blood levels still go higher initially than with procaine penicillin. The recent report of Parkhurst and Bowman (Treatment of Neurosyphilis at Hot Springs Medical Center, Arkansas, *J. Ven. Dis. Inform.* **29**:159, 1948) indicates that penicillin in peanut-oil-beeswax is effective in the treatment of syphilis of the central nervous system.

2. There is no information in the literature dealing with penicillin blood levels with such a schedule, although with a lesser number (8 to 16) of daily injections of 300,000 units of procaine penicillin average levels would be mainly in the range of 0.08 to 0.64 unit. According to Thomas, Lyons, Romansky, Rein and Kitchen (J. A. M. A. **137**:1517, 1948) sixteen daily injections of 300,000 units of procaine penicillin did not lead to any cumulative effect of penicillin in the blood.

3. Information is not available dealing with the effect of carinamide on penicillin blood levels for this or even shorter procaine penicillin schedules.

## BURNING SENSATION OF TONGUE

*To the Editor:*—A patient, 37 years old, has had good general health. She is high strung and becomes excited easily. Six weeks ago she complained frequently of a burning sensation on the lower lip. This soon involved the tip of the tongue. Her tongue felt as if she had eaten some spicy or hot food. She was not anemic. Examination of the tongue and lips was negative. Thinking that she might have gastric hypoacidity and thiamine deficiency I gave her a prescription containing hydrochloric acid and nicotinic acid. This did not seem to change her complaint. Gastric analysis was essentially normal and did not indicate hypoacidity. Burning sensation now involves the entire tongue, and she feels a hot burning sensation down the pharynx to the esophagus. I have treated her with diphenylhydantoin sodium without results and have also given her bromides for nervousness. She has stopped smoking. I would appreciate suggestions. M.D., Missouri.

ANSWER.—The impression of psychoneurosis is possibly correct, with local irritation of some sort to be ruled out as a cause or associated factor. The bilateral, progressive burning sensation of the lip, tongue and throat, in a nervous woman of 37, in the absence of visible inflammation, anemia or response to therapy suggests an abnormality which may be present in a situational neurosis, menopause, hysteria or phobia.

Infection, gastrointestinal and systemic disorders and allergy seem to be excluded; the site is correct for the last named, but the constancy is against it. Local causes could include an irritant food or beverage, an irritant mouth wash, excessive smoking and new dental work (with a difference of electric potential between dissimilar fillings).

Several measures could be tried after consideration of the previous suggestions. A continued ban on smoking, restriction to bland food and drink; the use of a dilute bland or astringent mouth wash, reassurance, in case of cancerophobia, ½ grain (30 mg.) of phenobarbital three times a day and observation to note an obscure cause are suggested. If the dosage of nicotinic acid was not high, she might be given 100 mg. of nicotinamide orally per day for two weeks. If the burning is associated with dryness, it has been suggested that a trial of neostigmine bromide (7.5 mg. three times a day after meals) will increase the secretions and decrease the burning. If the case seems functional, obtain the help of a neuropsychiatrist.

## TUBERCULOSIS IN IMMIGRANTS

*To the Editor:*—I have seen an impressive number of recent immigrants with far advanced active pulmonary tuberculosis. This would seem to be a valuable and fruitful field for "case finding." What is being done along these lines at the moment?

William A. Evans, M.D., Detroit.

Answer.—This is an exceedingly serious problem which should be solved by all nations. Prior to 1939, Newitt and Koppa observed that each spring several thousand Mexican agricultural laborers (mostly American citizens) journeyed from Texas to work in the sugar beet, onion and peppermint fields of Michigan. These itinerant laborers and their families provided many of the tuberculous persons entering certain sanatoriums in Michigan. In 1937 the roster of the Saginaw County Hospital showed that 25 per cent of the patients were Mexican, the majority of whom had come to Michigan with their families to work as agricultural laborers. This was far out of proportion to their number in the county. A plan was devised whereby sugar beet laborers migrating to Michigan would be examined by the Michigan Department of Health at their concentration headquarters in San Antonio, Texas. In 1939, 4,271 such persons were examined, of whom 81 had tuberculosis, and in 1940, among 5,753 examinees, 121 had this disease. Thus the rejection of these persons for employment prevented an influx into Michigan of a considerable number of cases of tuberculosis.

From Feb. 1, 1943 to Sept. 20, 1945, the Division of Tuberculosis Control and the Foreign Quarantine Division of the United States Public Health Service established an examination center at Mexico City, where laborers were examined prior to entrance into the United States to work under the program of the War Food Administration. A total of 222,156 were examined, of whom 2,313 were rejected. Of these, 1,261 had the reinfection type of tuberculosis, 6 had other forms of tuberculosis, and 1,046 others were classified as tuberculosis suspects. This procedure prevented many with contagious tuberculosis from entering this country.

The importation of tuberculosis through domestic animals has been well controlled in this country. In recent years the U. S. Public Health Service, the immigration authorities and the State Department consular officials have done such excellent work that our citizens should soon be as well protected against tubercle bacilli introduced by persons from other countries as we now are against those imported in cattle. An arrangement was made whereby every person applying for a visa would have roentgen inspection of the chest, and if any shadow was seen the tuberculin test would be administered and a thorough bacteriologic search made when possible. Roentgenograms were made abroad wherever the Public Health Service had medical officers assigned to the consulates and x-ray facilities were available. In the course of medical examinations of visa applicants abroad, those found to have contagious tuberculosis were given class A notifications, and visas were refused.

A person given a diagnosis of pulmonary fibrosis (class B condition) is given a visa and reexamined later on entering the United States.

A provision became effective on Sept. 1, 1948, whereby every applicant for immigration visa will have a roentgen inspection of the chest for tuberculosis and a blood test for syphilis. Those found to have either of these diseases are rejected. (This provision exempts visa applicants 10 years of age or under "unless the examining medical officer has reason to suspect that the applicant has tuberculosis or syphilis.") When examinations are conducted at American consulates which lack x-ray and laboratory facilities the applicant may be required to furnish a roentgenogram of the chest with a reading and a blood serologic report. These and the physical examination records are placed in a separate envelope and attached to the alien's immigration visa for examination by medical officers at the United States ports of entry. If the person originates from a community where there are no facilities for such examinations, the medical officer there so states on the physical examination forms. Those who do not have adequate reports of examination at the port of embarkation are held at the port of entry, pending completion of the examination adequate to determine the presence or absence of tuberculosis or syphilis. Temporary visitors to the United States are excluded from this requirement but may be subject to appropriate examination when tuberculosis or syphilis is suspected.

Since we require such protection for our citizens, we should also afford security to the people of other nations by issuing passports only to those who are adequately examined and found to be free from contagious tuberculosis.

A high percentage of immigrants from some countries are tuberculin reactors without other evidence of tuberculosis. Annual case-finding programs among them are likely to be fruitful.

## VISUAL HALOS

*To the Editor:*—What would cause a "halo" around a bright light? The patient is otherwise apparently in perfect health. Examination of eyes is negative except for a refractive defect. Tension, optic nerve, disk, retina all appear normal. Sight is good, pain is absent and the crystalline lens is normal. The patient is 76 years old and has never been ill. Could a neurosis play any part in his disturbance?

Frank E. Wiedemann, M.D., Terre Haute, Ind.

Answer.—Halos may be caused by a layer of mucus, blood or pus on the cornea, by edema of the deeper layers of the cornea due to glaucoma or inflammation, or by radially arranged fibers in the lens. Those due to secretions on the corneal surface are altered by blinking movements of the lids, which is not true of those due to glaucoma or the lens. Physiologic lenticular halos are distinguished by rotating a stenopaic edge across the pupil. As the different radial fibers of the lens are excluded the halo is partially eclipsed, while those due to secretions appear to revolve around and those due to glaucoma are unchanged or appear fainter. Other differential tests based on measurement of the angular diameter of the halo are discussed in Duke-Elder (Textbook of Ophthalmology, Vol. II, p. 1232, C. V. Mosby Co., St. Louis, 1943.) All tests to eliminate a physiologic cause of the halos must be exhausted before a diagnosis of neurosis is considered. It is most important to eliminate glaucoma as a cause by study of the visual fields; repeated tonometer readings, provocative tests and funduscopy. A halo with an external diameter of more than 17 inches at ten feet not caused by corneal secretion suggests glaucoma.

## SUBDURAL HEMORRHAGE

*To the Editor:*—Please furnish information on occurrence of subdural hemorrhage other than that caused by external force or trauma. Textbooks and the literature fail to give much detail or even adequately discuss this type of hemorrhage. Does it occur as the result of other conditions?

Robert O. Glenn, M.D., Mountain City, Tenn.

Answer.—Subdural hemorrhage rarely occurs except as the result of trauma. In many instances the trauma is relatively slight. True, a number of patients suffering from subdural hematoma also suffer from some disease of the vascular system such as arteriosclerosis, but this of itself is insufficient explanation for the hemorrhage. One of the uncommon causes of subdural hemorrhage without associated trauma is thrombosis of the superior longitudinal sinus either as part of the disease "idiopathic recurrent thrombophlebitis" (Bucy, P. C., and Lesemann, F. J.: J. A. M. A. **119**:402-405, 1942) or from other causes (Courville, C. B., and Nielsen, J. M.: *Arch. Otolaryng.* **19**:483, 1934). Occasional instances of subdural hemorrhage, usually relatively mild, have been reported in association with such diseases of the blood as pernicious anemia, leukemia, polycythemia vera and purpura hemorrhagica. Scurvy has also been cited as a cause, particularly in young children (Govan, C. D., and Walsh, F. B.: *Arch. Ophth.* **37**:701-715, 1947). The possibility of subdural hemorrhage occurring in association with the various acute infectious diseases has also been mentioned, but if this occurs it is extremely rare. Chronic alcoholism and syphilis are usually cited as playing a role in the development of subdural hematomas. At present, practically all authorities agree that when and if these conditions are factors, they are always secondary.

## FLUORIDE IN PREVENTION OF DENTAL CARIES

*To the Editor:*—Fluorides are said in some publications to cause mottling of the dental enamel, and in others sodium fluoride is recommended as a topical application to preserve the enamel. Will you explain these conflicting statements?

Narcisse Francis Theberge, M.D., New Orleans.

Answer.—Mottled enamel, or endemic dental fluorosis, is caused by the continued use of a domestic water containing excessive amounts of fluorides (more than 1.5 parts per million of fluoride) during the period that the permanent teeth are calcifying. With the exception of the third molar this represents about the first eight years of life. This defect is developmental; in a person moving into an endemic area after the permanent teeth have erupted the enamel does not become mottled. Numerous epidemiologic studies attest the quantitative relationship between the use during the susceptible period of a domestic water supply containing excessive amounts of fluorides and the prevalence and severity of the resultant endemic dental fluorosis.

As a result of later epidemiologic studies demonstrating the decided inhibition of dental caries among users of domestic waters containing 1 part per million of fluoride or over, a number of studies have been directed to the utilization of the relationship between fluorine and dental caries for dental control procedures. One of these methods is the topical application of a 2 per cent aqueous solution of sodium fluoride following prophylaxis. Studies completed indicate that after four treatments, spaced about a week apart, a reduction of the order of about 40 per cent may be expected in the incidence of dental caries in the group. Topical application studies so far have been largely limited to children; further studies are needed to determine whether or not it is effective with respect to adults. In teeth treated with topical applications of sodium fluoride solutions the enamel does not become mottled.

The mechanism by means of which fluoride inhibits dental caries is not known. Hodge and Sognnaes (Experimental Caries and a Discussion of the Mechanism of Caries Inhibition by Fluorine, in Dental Caries and Fluorine, American Association for the Advancement of Science, 1946) offer the following hypothesis:

"Fluoride is adsorbed or bound in combination in enamel or in dentin and, probably of most importance, on the surface of the tooth, thereby (1) lowering the solubility of the calcified part; (2) giving a relatively high local concentration of fluoride which inhibits those bacterial or enzymatic processes that otherwise are believed to dissolve the protein and the calcified material; (3) changing the salivary milieu as shown by the L. acidophilus counts. There are probably some systemic actions of fluorides partly responsible for the caries inhibition; these are unknown at present."

## "AGENIZED" FLOUR

**To the Editor:—Are there any known industrial ophthalmic or medical hazards for flour mill workers exposed to the "Agene treatment of flour" using Agenite salts, chlorine and nitrogen trichloride gas? I have an exposed worker as a patient that developed an interstitial keratitis of the right cornea. Wassermann and Kahn are negative (three different laboratories). Tuberculin and Brucella tests were positive. Age, 64 years, male.**

**M.D., Pennsylvania.**

ANSWER.—The "agene" process centers about the action of nitrogen chloride (nitrogen trichloride). This treatment is for the purposes of bleaching and maturing flour and for improving the quality of the bread loaf. In the United States, nitrogen chloride is customarily added in the range between 1.2 to 2.5 Gm. per 100 pounds. At times, ancillary chemicals are utilized for similar purposes, the number including benzoyl peroxide. Provided sufficient exposure, nitrogen chloride gas or chlorine if such be liberated are surface irritants and might induce a conjunctivitis or aggravate corneal ulcers if such exist from other causes. Nitrogen chloride has been found both in this country and in England to provoke convulsive states in laboratory animals, chiefly dogs, after the ingestion of flour products that had been "agenized." No counterpart has been detected in human beings and to a substantial extent this treatment has been held blameless in the causation of any known disturbances in human beings from flour product consumption. However, it is possible that in the flour treating process the exposure to nitrogen chloride may be higher. Notwithstanding, no abnormalities akin to the "running fits" or "canine hysteria" have been reported in workers. Since rarer forms of keratitis have been associated with nutritional disturbances and since neurologic damage is a source of uncommon forms of keratitis, the remote possibility exists that nitrogen chloride may be an influence if adequate exposure has occurred. On the basis of always doubting unusual etiologies in any condition, it is highly probable that the present occurrence of interstitial keratitis may be traced to the usual causes of that state.

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## STREPTOMYCIN SENSITIVITY

**To the Editor:—Several nurses who work constantly with streptomycin have become allergic to it and complain about skin manifestations such as eczema, edema and blepharitis. Is there an accepted method of desensitization?**

**Leon A. Alley, M.D., Middleboro, Mass.**

ANSWER.—There is no accepted method of desensitizing persons who are sensitive to streptomycin except avoiding contact with it. Precautions should be taken to avoid contact of the skin with streptomycin. When nurses prepare the solutions, their hands should be protected with rubber gloves. The gloves should be washed carefully before they are removed and every precaution should be taken to prevent streptomycin from coming in contact with the skin or conjunctivae.

## IMPOTENCE IN DIABETES

**To the Editor:—A 37 year old patient has diabetes well controlled by diet and 32 units of protamine zinc insulin daily. He complains of impotence, which seems to be increasing in severity despite the fact that he married only a short time ago, after finding that he had diabetes. Is there any treatment for this condition?**

**James E. O'Malley, M.D., Anchorage, Alaska.**

ANSWER.—Impotence in diabetes is a symptom which is not completely understood. It is thought to occur more frequently in cases in which neuritis is associated with diabetes than with any other form, possibly because of changes in the nervi erigentes. Impotence is likely to develop in men who have had diabetes for long periods; a third possible factor is a lowered production of androgens as reflected by a diminished excretion of 17-ketosteroids. Miller and Mason (*J. Clin. Endocrinol.* **5**: 220-225 [May-June] 1945) found that a majority of impotent diabetic men excreted less than normal amounts of 17-ketosteroids; on the other hand, a significant number of diabetic men who did not complain of impotence also excreted subnormal amounts of 17-ketosteroids. Psychologic factors constitute a fourth and important possibility. Such factors could well be the cause of impotence in the case in question, particularly since the patient has had diabetes only a short while and no mention was made of the presence of neuritis.

As far as treatment is concerned, if impotence is the result of neuritic lesions, careful control of diabetes for months and even years offers a chance for the return of potency. Because of the diminished excretion of 17-ketosteroids in diabetes, a trial of testosterone propionate (25 mg. intramuscularly three times weekly) seems justified. Treatment with androgen should not be expected to have an effect on a neuritic process, and has not been helpful in many cases of impotence. An investigation of psychic factors is also indicated. This approach is set forth well on page 361 of the textbook "Psychosomatic Medicine," by Weiss and English.

## TREATMENT OF WARTS

**To the Editor:—Where can I obtain a verruca vaccine or filtrate? I have 2 patients with multiple recurring verrucae on the face, dating from five years in one. I have tried superficial roentgen treatment, local medication and dessication. The lesions continue to recur.**

**Albert Rubin, M.D., Hartford, Conn.**

ANSWER.—Apparently verruca extract, a vaccine or filtrate, cannot be obtained commercially. It must be processed as described in the article by Hans Biberstein (Immunization Therapy of Warts, *Arch. Dermat. & Syph.* **50**:12-22 [July] 1944). Recurrent warts on the bearded area have always plagued dermatologists. If they continue to reappear despite persistent treatment by various means such as destructive measures, treatment with arsenicals, mercury, roentgen therapy and exfoliating preparations, one might resort to hypnosis by an expert psychotherapist.

## ERYTHEMA NODOSUM

**To the Editor:—A case of mediastinal adenopathy with erythema nodosum (proved by biopsy and clinical course) poses the following problems: (a) incidence and most likely tumor and disease of the mediastinum with erythema nodosum, and (b) incidence of erythema nodosum with Boeck sarcoid if any. The patient, a woman aged 33, began having a pain in the right side of the chest several months ago, and still has it. The pain is worse on inspiration and in the upright position. She has had a poor appetite for years. Except for total proteins of 5.8 Gm. per hundred cubic centimeters, with normal albumin-globulin ratio and slight hypochromic anemia, significant findings are lacking.**

**Anthony M. Susinno, M.D., Palisades Park, N. J.**

ANSWER.—The presence of mediastinal adenopathy should suggest first the presence of pulmonary tuberculosis, but it occurs also in brucellosis, mycoses, Hodgkin's disease, neoplasm, and in about any disease affecting the lungs. Its occurrence with erythema nodosum should suggest also the presence of a focus of tuberculosis as the primary possibility, particularly in a young woman. Erythema nodosum, however, as a pattern reaction, may accompany any infectious process, and its occurrence with sarcoidosis has been noted. The incidence of erythema nodosum, aside from that due to drugs, is not high in this country, and its occurrence with sarcoidosis is even rarer.

## DIETHYLSTILBESTROL IN VARICOSITIES

**To the Editor:—Is diethylstilbestrol a valuable factor in alleviating pain of varicose veins in pregnancy?**

**Kurt Oppenheimer, M.D., Norwich, Conn.**

ANSWER.—Reliable evidence that diethylstilbestrol relieves the pain associated with varicose veins during pregnancy is lacking.

## PROMINENT FACIAL VEINS

*To the Editor:*—What can be done for a patient who is sensitive regarding a prominent superficial vein on the left frontal region which under certain circumstances becomes noticeable. She wants this vein ligated under the hair of the temporal region so that the scar will be covered. Can harm result from such a procedure?

*Mario Camarena, M.D., Mexico.*

Answer.—Ligation of short venous segments for cosmetic reasons seldom if ever results in satisfaction for the patient or the surgeon. In the first place, the venous dilatation may readily recur if it is the result of increased venous pressure due to some mechanical obstruction; secondly, the undermined skin may develop a subcutaneous scarring and pigmentation which is more noticeable than the original lesion. Certainly the decision should be made by a plastic surgeon after a personal examination of the patient. If the lesion is part of a congenital vascular anomaly and seems to enlarge, then a combination of sclerosing therapy and surgical incision is warranted. Cosmetic preparations often help to cover the lesion.

## INFANTILE MAMMARY ENLARGEMENT

*To the Editor:*—A 1 year old girl has a slightly enlarged left breast. The tissue feels somewhat firm, not nodular, but is more like an excess of normal glandular tissue. The left breast is about twice as large as the right. Since first noticed six months ago, it has grown only in proportion with the rest of the body.

*M.D., Mexico.*

Answer.—It is not unusual to find an enlargement of the mammary gland substance in infants, which is usually unilateral, smooth and hard, averaging about the size of a 25 cent piece. While a difference in size of the breasts may continue, they usually become more equal in size as the breasts develop toward puberty. Those that are smooth and contain no nodules should cause no apprehension as to malignancy. They may originate from slight mastitis during the early days of life.

Several years ago some foreign writers stressed the influence of the hormones of pregnancy on the enlargement and secretory function of the breasts of newborn babies.

## MUSCULAR DYSTROPHY

*To the Editor:*—Are there recent developments of value in treatment of pseudohypertrophic muscular dystrophy?

*Harry Winkler, M.D., Charlotte, N. C.*

Answer.—Pseudohypertrophic muscular dystrophy is not influenced by any known therapy, though good claims have been made for glycine and vitamin E. Recent carefully controlled studies demonstrate that glycine and vitamin E have not been of value. One should keep the dystrophic patient ambulant and postpone ultimate confinement to bed as long as possible. Massage may be tried but electrotherapy should not be used.

## BLADDER STONE

*To the Editor:*—Is there anything unusual in the spontaneous passage by a female of a bladder stone of elliptical shape which is 2 inches (5.1 cm.) in length and 1½ inches (3.8 cm.) in breadth?

*M.D., Virginia.*

Answer.—The spontaneous passage of a bladder stone of the described size is unusual. The female urethra is capable of wide dilation but normally can only be stretched to 35 F, which would be 105 mm. in diameter. In the case of a stone 1½ inches in diameter the dilation would be about four times what normally could be effected by the instrumental dilation.

## AMEBIASIS

*To the Editor:*—In 1939 a white girl, aged 5, had amebic dysentery in Nassau, Bahama Islands. She was treated with arsenical preparations. In 1940 two stool examinations at six month intervals were negative for Endamoeba histolytica. She is now a well developed and well nourished girl. In September her mother noticed a peculiar odor to her stools. A laboratory examination disclosed Endamoeba histolytica. She has no other symptoms. What are the treatment and prognosis?

*M.D., New Jersey.*

Answer.—All carriers of Endamoeba histolytica should receive treatment starting with a drug of low toxicity; chiniofon, containing 26 to 28 per cent iodine, is such a drug. It is available in 0.25 Gm. tablets. Three tablets may be given orally after each meal for eight to 10 days. The dose may be reduced if diarrhea occurs. The course of treatment may be repeated in ten days. There need be no limitation of the patient's activity. In older children diiodo-oxyquinoline may be used in an oral dose of two 0.21 Gm. tablets three times a day for twenty days. If the iodine-containing drugs are not successful carbarsone may be used in an oral dose of 0.25 Gm. twice daily after meals for ten days. Stools should be examined once a month for at least three months after treatment. Under modern treatment most amebic carriers are curable.

## SULFONAMIDE DOSAGE

*To the Editor:*—Colleagues prescribe sulfonamide drugs and then cut the dose down or prolong time interval between doses as patient improves. Is it better to maintain therapeutic dosage until cure is established and then stop drug entirely? What is the latest opinion about iron administration to premature infants?

*Harry W. Orris, M.D., Lynn, Mass.*

Answer.—Absolute rules concerning the precise method of administering sulfonamide drugs to patients with infections do not exist. In general, it can be said that dosage schedules and duration of treatment must be determined on a basis of the type and location of infection and the response to treatment. It is a common practice to maintain therapeutic doses until the patient has recovered and then stop the drug entirely. If relapse occurs, the drug can be started once again.

The use of iron preparations for the treatment of anemia that occurs in infants that have been born prematurely is recommended.

## VASECTOMY

*To the Editor:*—Should partial vasectomy for birth control be advised for a patient under age of thirty-five? Is it advisable at all? After this operation the libido of the person is increased for a period of eight to ten years, then it decreases to practical absence and remains at that level. I have advised against vasectomy under age fifty but my colleagues do it and tell me that I am wrong. Please advise me on this matter.

*O. E. Layton, M.D., Collinsville, Okla.*

Answer.—There is some difference of opinion among urologists concerning vasectomy for birth control. However, the present consensus seems to be that it should not be done. Conclusive evidence that vasectomy has any effect whatsoever on the individual's sexual life is lacking except that he becomes azoospermic. Vasectomy is indicated and is done for the prevention of epididymitis following prostatic operations and also in some instances to prevent recurrent attacks of epididymitis.

## DETERMINING THE SEX OF CHICKS

*To the Editor:*—Please give information on methods used by the Japanese in determining the sex of chicks.

*Stuart B. Blakely, M.D., Binghamton, N. Y.*

Answer.—The Japanese method of sexing chicks within one day of hatching depends on recognition of minute differences in the configuration of the rim of the cloacal orifice; a small rounded protuberance in males is the diagnostic feature. There is considerable, although minute, variability in the topography of this region and the method has to be "learned" and practice is required. An expert attains approximately 98 per cent perfection. *The American Scientist*, April, 1948, page 280, carried an excellent article on this "art."

## HISTAMINE IN GASTRIC ANALYSIS

*To the Editor:*—The answer to the query "Histamine in Gastric Analysis" in The Journal, September 18, page 256 is incomplete. It states, "The usual dose of 0.1 mg. histamine base for each 10 kilograms of body weight may perhaps be a little high. . . . Satisfactory results can be obtained by using 0.3 to 0.5 mg of histamine base."

The only occasion for the use of histamine in gastric analysis for diagnostic purposes is when the basal gastric contents do not contain free hydrochloric acid and one wishes to know whether the patient's stomach is capable of secreting hydrochloric acid. This information may have crucial diagnostic significance. Under these circumstances the dose of histamine should be one which is greater than that needed to evoke a maximal secretory response in the average normal person. Actually, there are no data on the dose of histamine required to produce a maximal response in normal subjects, and this problem deserves study. Until such information is available, in testing persons to determine whether their stomach is capable of secreting hydrochloric acid one should use as large a dose of histamine as can be tolerated without untoward effects, and 0.1 mg. histamine base per 10 kilograms of body weight is a satisfactory empiric figure for this purpose. Any any rate, no reduction in dosage should be advised. Even at this dosage level it is sometimes necessary to do repeated tests to elicit acid secretion in refractory cases.

*M. I. Grossman, M.D., Chicago.*

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## THE TREATMENT OF ACUTE PERITONITIS

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During the phenomenal development of chemotherapy in the past thirteen years, considerable confusion has arisen regarding the value of the various agents in the management of acute septic peritonitis. Although most surgeons agree that chemotherapy has been of great value, there is no agreement as to which is the best agent to use or what is the best manner of its application. A summary of the present knowledge and experience is presented to establish the relative place of chemotherapy, the most effective agents and any changes in surgical practice made possible in the management of acute septic peritonitis.

There is still no specific treatment for acute septic peritonitis, and successful management is dependent primarily on good surgical intervention, aided by early and correct diagnosis, chemotherapy and adequate preoperative and postoperative care.

*Early Correct Diagnosis.*—When peritonitis exists, the earlier the diagnosis is made, the more effective is prompt treatment. A determination of the type of peritonitis as well as the exciting etiologic factor which precipitated the infection is necessary for intelligent and definitive operative treatment. Acute septic peritonitis may occur as one of two general clinical types: a primary type, usually occurring in children and having a monomicrobic causation, the etiologic factor being the pneumococcus or a hemolytic streptococcus, and a secondary type, having a polymicrobic [1] and nonspecific causation and arising from perforation or leakage of the intra-abdominal viscera. The most important sources of secondary peritonitis are inflammations and injuries of the gastrointestinal tract, and the commonest factor is acute appendicitis. Other important gastrointestinal causes include spontaneous perforation of a peptic ulcer or traumatic perforation of the stomach or intestine. Acute cholecystitis, acute pancreatitis, acute diverticulitis, areas of necrosis due to volvulus, strangulation or intussusception of the bowel and, occasionally, sloughing of a malignant tumor may be precipitating factors. Disease or injury of the female genital tract, including septic abortion, puerperal sepsis, gonorrheal salpingitis, trauma during parturition, curettage, induced abortion and, occasionally, spontaneous rupture of a tubo-ovarian abscess, may also be a source of peritonitis. Lesions of the urinary tract are less important causes. Postoperative peritonitis may be the result of continued leakage from a gastrointestinal perforation or a faulty suture line of an anastomosis, continuation of the infection for which the operation was originally done, operative contamination of the peritoneum or of sponges or other foreign bodies left in the peritoneal cavity. Penetrating wounds of the abdominal wall without perforation of an intra-abdominal viscus are not important sources of peritonitis.

It is particularly important to determine whether or not progressive leakage from a perforated viscus is present in peritoneal infections secondary to inflammations or injuries of the gastrointestinal tract other than acute appendicitis. The demonstration of gas in the peritoneal cavity by decreased hepatic dulness on percussion or by a roentgenogram of the upper abdomen with the patient in the upright or lateral decubitus position will help to establish the presence of such a perforation. The necessity of accurate determination not only of the location, extent and severity of the peritonitis but also of the organ primarily involved is obvious for the correct placement of the surgical incision and the institution of intelligent supportive therapy.

### OPERATIVE TREATMENT

Since the great majority of the cases of acute septic peritonitis is secondary to lesions of the alimentary tract, the treatment is still primarily surgical. It has been the policy of surgeons at the Cincinnati General Hospital to operate promptly in most instances, removing the focus of infection or closing the gastrointestinal perforation with a minimum of trauma, as soon as the patient's condition permitted. The logic of early operation to prevent further and general peritoneal contamination is obvious, and the results of surgical intervention before abdominal distention and intestinal stasis have developed have been very satisfactory. In civilian practice, each perforation should be closed, and most perforations can be repaired by inverting Lembert or mattress sutures of medium or fine black silk. When resection is necessary, primary anastomosis by the closed end to end method is preferred at the Cincinnati General Hospital, although we do not hesitate to make a proximal colostomy in rectal or low sigmoidal injuries or to exteriorize extensively damaged segments of colon.

Unfortunately opinion differs among surgeons concerning the operative and nonoperative treatment [2] of

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Read before the Section on Surgery, General and Abdominal, at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

[1] Altemeier, W. A.: Surgical Infections of the Peritoneum, S. Clin. North America **22:** 437-454, 1942.

[2] Ranson, H. K.: Delayed Intervention in Appendiceal Abscesses and Spreading Peritonitis Due to Appendicitis, Internat. Abstr. Surg. **68:** 359-376, 1939. Horsley, J. S.; Horsley, J. S., Jr., and Horsley, G. W.: Appendicitis: Newer Methods of Treatment, J. A. M. A. **113:** 1288-1293 (Sept. 30) 1939. Orr, T. G.: Treatment of Peritonitis, ibid. **113:** 1489-1492 (Oct. 14) 1939.

established and spreading peritonitis, but it is our belief that surgical judgment of the individual case should take precedence over any fixed rule. In the cases where the patients show little or no signs of abdominal distention, falling blood pressure and cyanosis, immediate operation has been generally practiced at our clinic regardless of the duration of the infection and as soon as the diagnosis has been made and the chemical alterations of the blood corrected (table 2).

TABLE 1.—*Classification of Peritonitis*

- I. Primary
    - A. Streptococcic
    - B. Pneumococcic
- II. Secondary
    - A. Caused by diseases and injuries of the gastrointestinal tract
        - 1. Appendicitis
        - 2. Gastric and duodenal injuries and inflammations
            - (*a*) Perforation of a peptic ulcer
            - (*b*) Perforations caused by trauma, such as gunshot and stab wounds
        - 3. Intestinal injuries and inflammations
            - (*a*) Traumatic perforations
            - (*b*) Spontaneous perforations
                - 1. Diverticulitis
                - 2. Sloughing of a malignant tumor
                - 3. Tuberculous ulcer
                - 4. Typhoid ulcer
            - (*c*) Nonperforated lesions
                - 1. Devitalization of intestinal wall due to impaired circulation from lesions, such as intestinal obstruction, volvulus, and intussusception
    - B. Lesions of female genital organs
        - 1. Gonorrheal salpingitis
        - 2. Septic abortion
        - 3. Puerperal sepsis
        - 4. Trauma during parturition or induced abortion
    - C. Lesions of biliary system and pancreas
        - 1. Suppurative cholecystitis
        - 2. Pancreatitis
        - 3. Biliary peritonitis
        - 4. Perforation of a hepatic abscess
    - D. Lesions of male genitourinary tract
        - 1. Injuries of suppurating lesions of the bladder, prostate, seminal vesicles and kidneys
    - E. Miscellaneous types of peritonitis
        - 1. Postoperative
            - (*a*) Leaking suture line of an anastomosis
            - (*b*) Continuation of the peritonitis for which the operation was done
            - (*c*) Sponges or foreign bodies left in the peritoneal cavity
            - (*d*) Operative contamination of the peritoneum
        - 2. Perforating wounds of abdominal wall only

However, in the neglected or moribund patients with marked distention, dehydration and cardiovascular depression, surgery has been postponed and conservative therapy used until localization or improvement might occur. In a total of 258 patients with cases of complicated acute appendicitis, 167 with peritonitis and 53 with appendical abscess, which were treated between January 1942 and April 1, 1948, 248 were operated on, and only 10 were not. Of those treated nonoperatively, 4 were moribund on admission and died within twelve hours of admission. The remaining 6 had cases with abscess in which the infection subsided during conservative therapy. There was a general mortality of 6.2 per cent and a postoperative mortality of 4.8 per cent for the entire series. Likewise, in a series of 179 consecutive cases of perforated peptic ulcers with peritonitis, treated in the same period, 169 patients underwent operation with closure of the perfoation, and 10 did not, because of their moribund state in 8 instances and the prolonged period of elapsed time since perforation in 2 cases. All 8 of the patients with neglected cases died shortly after admission. The general mortality was 11.7 per cent, while the postoperative mortality was 7.6 per cent.

Patients with appendical abscesses generally have been treated conservatively to permit their infections to subside spontaneously if possible. However, if the size of the abscess or the signs of infection did not begin to diminish within twenty-four to forty-eight hours or if the signs increased at any time, immediate plans for operation were made. In 53 cases of abscess, 45 patients were operated on within twenty days after admission, and 13 were treated by incision and drainage without appendectomy. The mortality among the 13 treated with incision and drainage only was 15.3 per cent, and that among the 35 undergoing appendectomy with drainage was 5.7 per cent. Intra-abdominal abscesses other than appendical ones have been incised and drained as soon as their presence has been determined and localization has occurred.

In making abdominal incisions for peritonitis, it is important for one not to dissect back the various layers any more than is absolutely necessary since doing so exposes greater areas of areolar tissue, which have little resistance to contamination and infection by the mixture of bacteria in the peritoneal exudate.[2a]

There is a growing belief that it is unnecessary and useless to attempt to drain the peritoneal cavity in the presence of diffuse contamination or diffuse peritonitis. This belief is particularly true in the treatment of perforated peptic ulcers and penetrating wounds of the abdomen. Drainage of the peritoneal cavity was not employed in a single instance in the 169 cases of perforated peptic ulcers and in only 4 instances in 156 cases of patients undergoing operation for penetrating wounds of the abdomen. However, if the retroperitoneal tissues were found to be contaminated, it was considered necessary to drain them through a stab wound in the flank.[3]

In established peritonitis arising from appendicitis and other lesions of the gastrointestinal and genitourinary tracts, the question of drainage is decided on the merits of each individual case. Careful removal of excessive exudate by suction has been done as part of the operation, but extended efforts to cleanse the peritoneal surfaces have not, since they disturb natural protective mechanisms of the peritoneum. Only the

TABLE 2.—*Incidence and Mortality of Three Types of Peritonitis*

| Type of Peritonitis | No. of Cases | Surgical Treatment | Nonoperative Treatment | Total Mortality | Postoperative Mortality |
|---|---|---|---|---|---|
| Appendical peritonitis or abscess | 258 | 248 | 10 | 6.2% | 4.8% |
| Perforated peptic ulcer | 179 | 169 | 10 | 11.7% | 7.6% |
| Penetrating wounds of the abdomen | 161 | 156 | 5 | 14.2% | 11.5% |
| Total | 598 | 573 | 25 | | |

TABLE 3.—*Intraperitoneal Drainage in Operative Cases of Peritonitis*

| Type of Peritonitis | No. of Operative Cases | No. Treated with Drainage |
|---|---|---|
| Appendical peritonitis or abscess | 248 | 204 |
| Perforated peptic ulcer | 169 | 0 |
| Penetrating wounds of the abdomen | 156 | 4 |

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[2a] Altemeier, W. A.: The Pathogenicity of the Bacteria of Appendicitis Peritonitis, Ann. Surg. **114:** 158, 1941.

[3] Altemeier, W. A.: Treatment of Penetrating Wounds of the Abdomen in Civilian Practice, S. Clin. North America **26:** 1152-1169, 1946.

presence of foreign bodies, necrotic tissue, or localized collections of pus has been considered an indication for drainage.[4] As in the past,[5] the incidence of postoperative pelvic abscess in the patients treated by appendectomy with drainage of the peritoneal cavity was one-half that in the patients treated without drainage.

TABLE 4.—*Comparison of the Incidence of the Causes of Death in Penetrating Wounds of the Abdomen Before and After Chemotherapy*

| 104 Cases Admitted Between January 1938 and January 1942 | | 161 Cases Admitted Between January 1942 and May 1948 | |
|---|---|---|---|
| Cause of Death | No. of Cases | Cause of Death | No. of Cases |
| Peritonitis | 9 (31.0%) | Hemorrhage | 7 (30.4%) |
| Hemorrhage | 7 (24.1%) | Pneumonia | 4 (17.4%) |
| Shock | 6 (21.3%) | Putrefactive empyema | 4 (17.4%) |
| Pneumonia | 5 (17.2%) | Peritonitis | 2 ( 8.7%) |
| Uremia | 1 ( 3.4%) | Meningitis | 2 ( 8.7%) |
| Retroperitoneal cellulitis | 1 ( 3.4%) | Uremia | 1 ( 4.3%) |
| | | Undetermined | 1 ( 4.3%) |

TABLE 5.—*A Comparison of the Mortality of Three Types of Peritonitis Before and After Adoption of Chemotherapy*

| | Cases Treated Without | | Cases Treated with | |
|---|---|---|---|---|
| Type of Peritonitis | Chemotherapy | Mortality | Chemotherapy | Mortality |
| Appendical peritonitis or abscess | 338 | 14.6% | 244 | 4.9% |
| Perforated peptic ulcer | 143 | 26.6% | 160 | 9.3% |
| Penetrating wounds of the abdomen | 104 | 27.9% | 161 | 11.5% |

In the 204 cases with peritoneal drainage, the mortality was 5.4 per cent, whereas there was no mortality in 46 cases treated without peritoneal drainage. The low mortality in the latter group may not be significant and only the result of a definite tendency to drain only the severer infections. The very indications for drainage used at this clinic are not only evidences of a severer infection but also potent factors for the enhancement of bacterial[6] virulence. When drains are used, they are of the Penrose type, which are placed near the original source of the infection and in some instances into the depth of the pelvis and along the right paracolic gutter, the two areas where purulent fluid is prone to collect.

## CHEMOTHERAPY

During the past ten years the mortality of septic peritonitis has been progressively diminished, and part of the reduction undoubtedly has been due to the introduction and general use of effective antibacterial agents. The mortality of primary or idiopathic peritonitis caused by the pneumococcus or beta hemolytic streptococcus has been reduced from 70 up to 90 per cent to 30 per cent or less by surgical drainage and adequate chemotherapy.[8]

Significant decreases in the mortality of secondary peritonitis have also been striking. In a recent analysis[3] of 161 consecutive cases of penetrating wounds of the abdomen or chest and abdomen occurring at the Cincinnati General Hospital between January 1942 and May 1946, it was found that the mortality was only 11.6 per cent, and peritonitis was a cause of death in only 2 cases, the infection having followed continued leakage from an overlooked perforation or insecure anastomosis.

In contrast, 104 cases of penetrating wounds of the abdomen treated without chemotherapy in the preceding four years showed a mortality of 27.9 per cent with generalized peritonitis responsible for 31 per cent of the deaths. Our experience since 1946 with penicillin used alone or with sulfadiazine has continued to be good, with extremely effective control of the severe contamination and the elimination of peritonitis and severe infections of wounds as causes of death except in those instances in which a perforation was unnoticed or a suture line of an anastomosis leaked.

In a similar manner, the general mortality in 160 cases of patients with perforated peptic ulcers which were treated with sulfadiazine and/or penicillin, including the moribund patients who died shortly after admission, was 9.3 per cent, compared with 26.6 per cent in 143 earlier cases treated with chemotherapy (fig. 1). When penicillin and sulfadiazine were used, the average postoperative febrile period was only 6.3 days, whereas it was 8.0 days when penicillin alone was used and 12.4 days when only sulfadiazine was given.

In peritonitis or an abscess secondary to appendicitis the general mortality has been reduced from 14.5 per cent in 338 cases treated without chemotherapy between 1934 and 1938[5] to 4.9 per cent in 244 cases treated with chemotherapy between 1942 and 1948. The average duration of the infection in the later group was 3.8 days. The results were definitely superior in those cases treated with a combination of penicillin and sulfadiazine, not only with respect to mortality but also in regard to the morbidity and incidence of secondary intra-abdominal or wound abscesses (fig. 2).

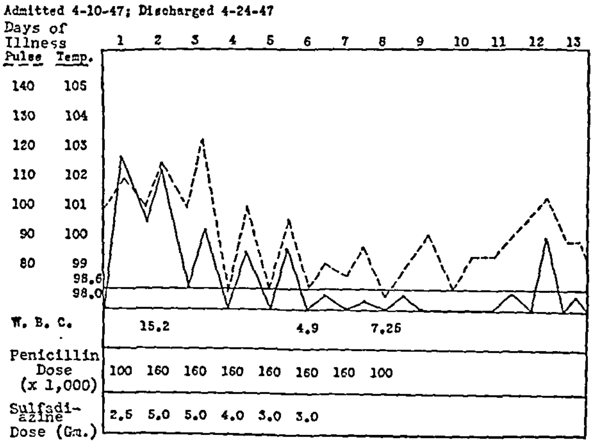

FIG. 1.—Clinical course with a typical response to operation and combined chemotherapy with penicillin and sulfadiazine in a case of perforated peptic ulcer with peritonitis.

There were no deaths in the 63 cases treated with penicillin and sulfadiazine nor in the 11 cases treated with penicillin, sulfadiazine and streptomycin. On the basis of our clinical experience, we recommend the following chemotherapy for effective treatment of acute secondary peritonitis: the parenteral administration of penicillin and sulfadiazine, the combined use of penicillin, streptomycin and sulfadiazine or the injection of large doses of penicillin. When several drugs are used in combination, the dose of each agent should be therapeutically effective. The dosage of penicillin when it is used singly is a minimum of 100,000 units given at intervals of two or three hours. In severe infections, it is our practice to revise this dosage upward, giving as high as 500,000 or more units every two or three hours. Intraperitoneal instillations of any of the agents are not used.

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[4] Reid, M. R., and Montanus, W. P.: Appendicitis, J. A. M. A. **114**: 1307-1311 (April 6) 1940.

[5] (*a*) Reid and Montanus.[4] (*b*) Tashiro, S., and Zinninger, M. M.: Appendicitis, Arch. Surg. **53**: 545-563 (Nov.) 1946.

[6] Tashiro and Zinninger.[5b] Halsted, W. S.: Inoculations of the Peritoneal Cavity with Pure Cultures of the Staphylococcus Aureus, Johns Hopkins Hospital Rep. **2**: 255, 1891.

[7] This footnote has been omitted.

[8] Ladd, W. E.; Botsford, T. W., and Curnen, E. C: Primary Peritonitis in Infants and Children, J. A. M. A. **113**: 1455-1459 (Oct. 14) 1939.

Originally it was thought that penicillin would be of little or no value in the prevention or treatment of secondary peritonitis because a large proportion of the infecting bacteria were of the gram-negative variety, which were either naturally resistant to the action of penicillin or were producers of enzymes which inhibited or destroyed the action of penicillin.[10] The experience of Crile,[11] Brown,[12] Pulaski and associates,[13] Blain[14] and Silvani and associates,[15] as well as ours, however, has indicated that these theoretical objections are not valid and that in reality penicillin in large dosage is probably the most effective single agent available in the treatment of peritonitis today.

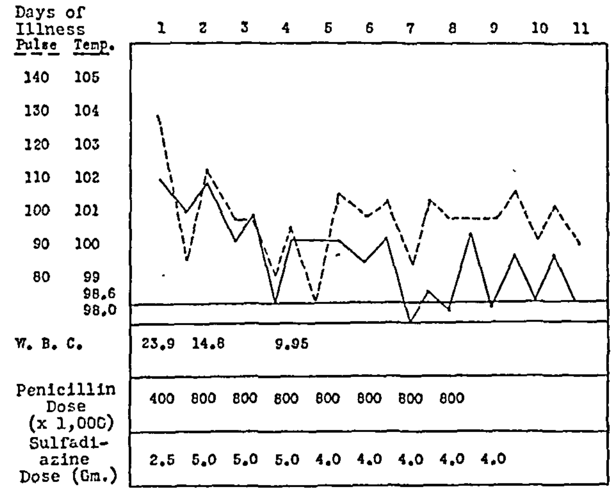

Fig. 2.—Clinical course with appendectomy and combined penicillin and sulfadiazine therapy in a young woman with acute perforated appendicitis and generalized peritonitis of 4.5 days' duration.

A review of our previous experimental work in peritonitis[16] suggests the explanations for the clinical effectiveness of penicillin. The bacterial flora of the peritoneal exudates was found to be mixed and varied in a study of 100 perforated appendixes, 3 or more species of bacteria being recovered from 96 of the 100 cases and as many as 7 types being occasionally isolated. Among the aerobes recovered were Escherichia coli, streptococci, Corynebacterium pseudodiphthericum, staphylococci, Aerobacter aerogenes, Proteus vulgaris, Alcaligenes faecalis, Bacillus subtilis and Bacillus mesentericus; and among the anaerobes were Hemophilus melaninogenicus, streptococci, gram-negative diplococci. Bacteroides funduliformis, Bacteroides fragilis and members of the Clostridium group. A further study[17] of the pathogenicity of these bacteria in pure and mixed culture revealed that the majority of the strains tested, particularly those of the gram-negative aerobic bacteria, possessed very small or no native invasive qualities. When injected subcutaneously they produced only minor local lesions or cellulitis and failed to cause a fatal peritonitis when injected intraperitoneally. Of 21 strains of Esch. coli tested, only 3 were found to be virulent, while the low virulence of the remaining 18 was surprising. In the same manner the majority of the anaerobic bacteria investigated, with the exception of the hemolytic streptococci, B. funduliformis, B. fragilis and the clostridia, did not produce fatal peritonitis. However, if several or more strains of these bacteria were mixed and injected intraperitoneally or subcutaneously, their composite virulence was tremendously increased, and their synergistic effect was repeatedly demonstrated by the production of extensive areas of cutaneous cellulitis with gangrene or overwhelmingly fatal peritonitis. Three things were concluded: that secondary peritonitis is essentially a synergistic infection produced by the accumulative action of the various bacteria; that nonpathogenic micro-organisms may play an important part by increasing the virulence of others with which they are associated, and that the pathogenicity assigned to Esch. coli and other gram-negative aerobic bacilli by some investigators is greatly exaggerated, the frequent ascription of peritonitis to the unaided activity of Esch. coli being without sufficient justification.

Many of the gram-positive cocci and bacilli which are associated with peritonitis are susceptible to the action of penicillin. By giving large doses of penicillin, one produces a concentration sufficient to inhibit the growth of the virulent gram-positive bacteria, particularly the anaerobes, thereby reducing the number of organisms growing actively in the peritoneal exudate and lessening the synergistic effect ordinarily produced. Although the growth of the gram-negative bacilli is not checked, the infection is controlled by the normal defensive mechanisms of the peritoneum. This observation supports our previous findings that Esch. coli is not a truly pathogenic organism in the majority of instances, but in reality is a saprophyte. In addition, the diminished incidence of necrotizing infections and cellulitis in wounds of patients receiving large doses of penicillin indicates that Esch. coli is not a chief offender when growing in the absence of the gram-positive aerobes and anaerobes.

### SULFONAMIDE DRUGS

Systemically administered sulfadiazine or sulfamerazine is a valuable adjunct in the therapy of peritonitis.[18] Its action depends not only on bacteriostasis of the susceptible bacteria but also on a nonspecific protection against the lethal effects of bacterial toxins.[19] In our experience, the results of sulfonamide therapy are enhanced considerably if the sulfonamide drug is combined with penicillin.

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[9] This footnote has been omitted.

[10] Meleney, F. L.: Penicillin in the Treatment of Established Surgical Infections, Ann. Surg. **124**: 962-980, 1946.

[11] Crile, G., Jr.: Peritonitis, Am. J. Surg. **72**: 859-864, 1946.

[12] Brown, M. J.: Combined Penicillin and Sulfonamide Treatment of Peritonitis, Am. J. Surg. **73**: 56-61, 1947.

[13] Pulaski, E. J.; Seeley, S. F., and Matthews, C. S.: Streptomycin in Surgical Infections, Surgery **22**: 889-899, 1947.

[14] Blain, A., III: Penicillin in Experimental Intestinal Obstruction, Surg., Gynec. & Obst. **84**: 753-758, 1947.

[15] Silvani, H. L.; Rothenberg, S.; Warmer, H.; Amluxen, J., and McCorkle, H. J.: Laboratory and Clinical Experiences with Streptomycin Therapy in the Management of Infections of Intestinal Origin, Surg., Gynec. & Obst. **85**: 721-726, 1947.

[16] Altemeier, W. A.: Bacterial Flora of Appendicitis with Peritonitis, Ann. Surg. **107**: 517-528, 1938.

[17] Altemeier, W. A.: The Pathogenicity of the Bacteria of Appendicitis Peritonitis, Surgery **11**: 374-384, 1942.

[18] Altemeier.[3] Brown.[12] Lockwood, J. S., and Rhoads, J. E.: Use of Sulfanilamide in the Treatment of Peritonitis, S. Clin. North America **19**: 1457-1464, 1939.

[19] Zahl, P. A.; Hunter, S. H., and Cooper, F. S.: Effect of Sulfonamides on Toxic and Antigenic Actions of Endotoxins of Certain Gram Negative Bacteria, Proc. Soc. Exper. Biol. & Med. **55**: 4-7, 1944. Zahl, P. A., and Hutner, S. H.: Temperature Factors in Action of Certain Bacterial Endotoxins, ibid. **56**: 156-158, 1944.

### STREPTOMYCIN

The available clinical experience and experimental studies indicate that streptomycin is not as effective as penicillin. The studies of Zintel [20] and Silvani and his associates [15] showed that the therapeutic results of streptomycin in experimental peritonitis in dogs were not as good as those of penicillin or a combination of penicillin and sulfadiazine. The clinical experience of Hirshfeld and his associates [21] and Pulaski, Seeley and Matthews [13] with peritonitis of various causations agrees with ours in that streptomycin appeared to be of greatest value in the treatment of early spreading peritonitis but that it was of questionable value in localized peritoneal suppuration or severe established peritonitis. Because of streptomycin's inability to control the important anaerobic cocci and bacilli of peritonitis, we no longer use it alone, but employ it only in conjunction with penicillin or sulfadiazine. In some instances it has been effective in combination with penicillin and sulfadiazine in infections which have failed to respond to penicillin alone or to penicillin and sulfadiazine.

### SUPPORTIVE THERAPY

Preoperative and postoperative preparation should be directed toward the correction of the derangements in physiologic chemistry caused by the peritoneal infection and the resultant toxemia. The important aspects of adequate supportive therapy include the correction of disturbances in water and electrolyte balance, of protein depletion and of vitamin deficiencies, as well as the use of gastrointestinal decompression, Fowler's position and oxygen therapy. It is not within the scope of this paper to elaborate on these subjects.

### SUMMARY

A review of our clinical experience during the past six years with 598 cases of acute septic peritonitis secondary to acute appendicitis, perforated peptic ulcers and penetrating wounds of the abdomen indictes that successful management depends primarily on early diagnosis and good surgical intervention and secondarily on chemotherapy and adequate supportive treatment. There is no specific therapy for this infection as yet, and chemotherapy is not a substitute for prompt diagnosis and early operative repair or removal of the primary source of infection before abdominal distention, intestinal stasis and cardiovascular depression have occurred.

A comparison of the results obtained in 685 similar cases treated without chemotherapy with those in cases in which chemotherapy was used reveals that the mortality has been reduced approximately 60 per cent recently and that this reduction is apparently due to the effects of chemotherapy.

The most effective chemotherapy in our experience is obtained by the combined parenteral administration of sulfadiazine and penicillin or that of penicillin, sulfadiazine, and streptomycin. When used alone in a high dosage of 100,000 to 500,000 units every two or three hours, penicillin is effective in the great majority of instances, with the exception of those infections caused in part by virulent gram-negative bacteria.

A review of our previous experimental work suggests that the unexpected effectiveness of penicillin in acute septic peritonitis is the result of a conversion of a severe synergistic and mixed infection into a simpler one produced predominantly by gram-negative bacteria, usually of low virulence. The combined use of sulfadiazine and/or streptomycin with penicillin is recommended for the further control of this etiologic component of peritonitis.

Cincinnati General Hospital.

## ABSTRACT OF DISCUSSION

Dr. Champ Lyons, New Orleans: I like to urge a continuation of surgical aggressiveness in the management of peritonitis. Fecal peritonitis, in contradistinction to primary peritonitis, is always secondary to the injury of tissue within the peritoneal cavity. The initiating factor in fecal peritonitis is the injury of tissue, due to trauma, infarction or escape of digestive enzymes or succus entericus. The devitalized tissue and accompanying serous exudate offer a ready pabulum for the growth of bacterial contaminants from the gastrointestinal tract. The challenge to antibacterial therapy is, therefore, twofold: first, to control the spread of the infection from the original nidus, and, second, to sterilize the devitalized tissue. The vast numbers of organisms present in peritonitis favor the survival of a minimal infective dose of primarily resistant variants. It follows, then, that an effort must be made to use an agent or agents capable of affecting all of the organisms involved. Clinical experience with purified penicillin G, the presently available product, has led me to believe it is far less potent than the older mixture of many amorphous penicillins and potentiating impurities. We have heard the evidence for the antibacterial effect of penicillin on gram-negative bacilli when that drug is used in synergism with streptomycin and sulfadiazine. Of perhaps greater importance is the effect of the three drugs together in preventing the emergence of penicillin-resistant strains of gram-positive bacteria when large numbers of bacteria are present in the original inoculum. Our clinical experience has validated the concept that the treatment should consist of independently optimal dosage of each of the three drugs. We have found this dosage to be 1,500,000 units of penicillin G, 0.75 to 1.5 Gm. of streptomycin and enough sulfadiazine per day to maintain a blood level of 5 mg. per hundred cubic centimeters. The antibiotics may be given at intervals of eight hours without apparent disadvantage. The development of residual abscesses, long thought to be evidence of inadequate antibacterial effect, is open to an entirely different interpretation. It is now recognized that no antibacterial agent can prevent the ultimate septic decomposition of contaminated and completely devitalized tissue. Viewed in this light, residual abscesses may be held to reflect the incidence of tissue infarction prior to control of the infection. Suffice it to say here that the peripheral circulatory collapse associated with the toxemia of peritonitis is also responsive to blood transfusions when combined with surgical correction of certain lesions.

*Major Edwin J. Pulaski*, Fort Sam Houston, Texas: Analysis of 102 cases of peritonitis of fecal origin treated in United States Army hospitals revealed the following: 1. Of 26 patients given streptomycin alone, intramuscularly in average doses of 2.5 Gm. a day for from five to nine days, 50 per cent were regarded as definitely benefited. Beneficial results were obtained in early spreading peritonitis. On the other hand, this drug did not seem to have an influence on strikingly localized peritoneal infection. 2. Of 76 patients given adjuvant streptomycin in combination with penicillin, with sulfadiazine added in 17 cases, 80 per cent were considered definitely benefited. Localizing infections seemed to resolve more rapidly with the combination than when streptomycin was employed alone. The substantial improvement of the results in *comparison with those of the streptomycin series is attributed to* the addition of penicillin to the streptomycin therapy program. These results are essentially in agreement with those presented by Dr. Altemeier. Bacteriologic evidence has been accumulated, validating the clinical use of combinations of streptomycin, penicillin and the sulfonamide drugs in properly selected cases. We have confirmed the observations of others that combinations of these three antimicrobial agents are optimally antibacterial for Staphylococcus aureus and Streptococcus hemolyticus. In vitro tests with the triple combination against the gram-negative bacteria Escherichia coli, Proteus vulgaris and Pseudomonas aeruginosa showed that the amount of each drug required in the combination was significantly less than that needed when any one drug was employed alone. Furthermore, the tests revealed that the rate of emergence of streptomycin-resistant strains was delayed in all instances. These studies are not meant to suggest economy by the reduction of doses. By the use of maximal therapeutic doses of the three drugs until an optimal response has been effected, my associates and I are finding that the length of time they are required is shortened. In spreading peritonitis this response usually is obtained in from five to seven days.

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[20] Zintel, H. A.: Streptomycin in Peritonitis, Am. J. Med. **2**: 443-448, 1947.

[21] Hirshfeld, J. W.; Buggs, C. W.; Pilling, M. A.; Bronstein, B., and O'Donnell, C. H.: Streptomycin in the Treatment of Surgical Infections, Arch. Surg. **52**: 387-401 (April) 1946.

Dr. William Altemeier, Cincinnati: I wish to thank the two discussants for their pertinent comments. I am glad to see that the experiences of Dr. Lyons and Dr. Pulaski coincide so closely with ours, in that they find that combined therapy with the various chemotherapeutic agents is superior to that of any single agent, including penicillin. I would like to emphasize again that there is no specific treatment for secondary peritonitis and that successful management depends primarily on early surgical intervention and secondarily on adequate chemotherapy. Although there were no deaths in the cases of spreading peritonitis treated with streptomycin, it must be remembered that these were early cases which were more or less hand-picked, and that the absence of mortality is probably of no significance. With early diagnosis, prompt surgical treatment and combined chemotherapy, the mortality of spreading peritonitis should be reduced almost to nothing in the near future, except in those patients who are moribund or who have been neglected until the time of their admission.

# TREATMENT OF BRUCELLOSIS WITH STREPTOMYCIN AND A SULFONAMIDE DRUG

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WENDELL H. HALL, M.D.
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and
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Observations in brucellosis in human beings have indicated that the simultaneous administration of streptomycin and sulfadiazine is more effective therapeutically than when either drug is given alone.[1] Experimental studies with infected fertilized hens' eggs have also supported this conclusion.[2] Furthermore, it has been shown experimentally that the combination of streptomycin and sulfadiazine acts synergistically against the three species of Brucella.[3] In the initial communication from our clinic on the treatment of human beings with the combination, 9 patients were included in the study.[1c] The results were more satisfactory than had been obtained with any other form of therapy up to that time at the University of Minnesota Hospitals. A subsequent report embraced a total of 17 patients treated with streptomycin and a sulfonamide drug.[4]

Continued experience with this combined therapy in brucellosis in human beings has provided further evidence that it constitutes a satisfactory form of specific treatment. The purpose of this paper is to review the clinical results in a group of 23 patients, who were treated during the fourteen months prior to writing. It should be emphasized that the diagnosis of brucellosis was proved bacteriologically in 17 of the 23 patients. The causative agent in all of these cases was Brucella abortus. In the remaining 6 cases, there was sufficient epidemiologic, clinical and laboratory evidence to support a diagnosis of active brucellosis. This number of patients and the lapse of sufficient time after the completion of therapy should provide answers to certain pertinent questions that have arisen in this and other clinics. These included: What sulfonamide preparation should be used in combination with streptomycin? What are the optimum doses of streptomycin and a sulfonamide drug in cases of acute and chronic brucellosis, with and without complications? What are the undesirable reactions arising from the use of such a combination? How rapidly and consistently does the combination affect the clinical course of brucellosis? How frequently do clinical and bacteriologic relapses occur? Is the development of streptomycin-resistant strains of Brucella a clinical problem?

## OPTIMUM DOSES OF STREPTOMYCIN AND A SULFONAMIDE DRUG

In order to obtain information as quickly as possible relative to the value of streptomycin and a sulfonamide drug in the treatment of brucellosis in human beings, it was necessary not to vary the dosage schedules too greatly and to select one sulfonamide drug to administer with streptomycin. Investigations with several sulfonamide preparations in the therapy of experimentally infected chick embryos indicated that any one of several was effective, particularly when used with streptomycin. Early in the studies of human beings, sulfadiazine was selected for oral administration. Experimentally, it has been observed that streptomycin and sulfadiazine are effective against all three species of Brucella, namely Br. abortus, Brucella suis and Brucella melitensis. Sulfamerazine can be used instead of sulfadiazine, or the required sulfonamide drug may be administered in the form of equal parts of sulfamerazine and sulfadiazine. Sulfathiazole is not recommended for treatment because it is a more potentially dangerous drug than either sulfadiazine or sulfamerazine. Sulfadiazine has been administered in those doses which have maintained a blood concentration of 5 to 10 mg. per hundred cubic centimeters. An orally administered dose of 3 to 4 Gm. was used initially and then 1 Gm. every four hours. Frequently, one of the night doses was omitted routinely, in order not to disturb the patient. To insure alkaline urine, 12 to 16 Gm. of soda bicarbonate was given in divided doses in a twenty-four hour period. Precautions against renal complications included a careful check of the fluid balance, striving to have the patient void at least 1 liter of urine in twenty-four hours.

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Read before the Section on Experimental Medicine and Therapeutics at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

This investigation was supported (in part) by a research grant from the Division of Research Grants and Fellowships of the National Institute of Health, United States Public Health Service.

[1] (*a*) Pulaski, E. J., and Amspacher, W. H.: Streptomycin Therapy in Brucellosis, Bull. U. S. Army M. Dept. **7**: 221 (Feb.) 1947. (*b*) Eisele, C. W., and McCullough, N. B.: Combined Streptomycin and Sulfadiazine Treatment in Brucellosis, J. A. M. A. **135**: 1053 (Dec. 20) 1947. (*c*) Spink, W. W.; Hall, W. H.; Shaffer, J. M., and Braude, A. I.: Human Brucellosis: Its Specific Treatment with a Combination of Streptomycin and Sulfadiazine, ibid. **136**: 382 (Feb. 7) 1948.

[2] Hall, W. H., and Spink, W. W.: Therapy of Experimental Brucella Infection in the Developing Chick Embryo: I. Infection and Therapy via the Allantoic Sac, J. Immunol. **59**: 379, 1948. Shaffer, J. M., and Spink, W. W.: Therapy of Experimental Brucella Infection in the Developing Chick Embryo: II. Infection and Therapy via the Yolk Sac, J. Immunol. **59**: 393, 1948.

[3] Shaffer, J. M., and Spink, W. W.: Therapy of Experimental Brucella Infection in the Developing Chick Embryo: III. The Synergistic Action of Streptomycin and Sulfadiazine, J. Immunol. **60**: 405, 1948.

[4] Spink, W. W.: Pathogenesis of Human Brucellosis with Respect to Prevention and Treatment, Ann. Int. Med., **29**: 238, 1948.

Many in vitro tests with freshly isolated strains of the three species of Brucella showed that a concentration of 1.5 to 2.5 micrograms per cubic centimeter of streptomycin completely inhibited growth. It was apparent that many times these levels could be readily attained in the blood by the injection of moderate amounts of streptomycin. After the administration of 0.5 Gm. of streptomycin, blood levels of 15 to 20 micrograms were obtained. The first 2 patients in our clinic treated simultaneously with streptomycin and sulfadiazine were seriously ill and had been in ill health for several months. One had subacute bacterial endocarditis due to Br. abortus as a complication. Therefore, relatively large doses of streptomycin were employed. A total of 4 Gm. was given daily for fourteen days, and 6 Gm. of sulfadiazine was administered daily for twenty-two days. This patient recovered completely and has remained free of any evidence of brucellosis for fourteen months, but, as a result of the streptomycin therapy, a disturbing and slightly disabling dysfunction of the vestibular apparatus has persisted. The second patient was successfully treated with similar doses and has remained in good health for the same period of time. Because evidence was accumulating in the treatment of other infections with streptomycin that toxic reactions, especially involvement of the eighth nerve, were more likely to occur with the larger doses, it was decided to reduce the total dose of streptomycin administered. Accordingly, a total of 12 patients were treated with smaller doses of streptomycin. Five-tenths of a gram was injected every six hours for one week, and 6 Gm. of sulfadiazine was administered daily for total of three weeks. In a few instances, this total amount of streptomycin did not appear to be sufficient. Finally, the present recommended schedule was arrived at. Streptomycin is now administered in a dose of 0.5 Gm. every six hours for a total of 28 Gm. given in fourteen days. At the same time that therapy with streptomycin is started, an initial dose of 3 to 4 Gm. of sulfadiazine is given and then 1 Gm. every four hours for at least fourteen days and in some instances for twenty-one days. It has not been established clearly whether treatment with sulfonamide drugs should be continued for an additional week beyond the two weeks of combined treatment.

The only toxic reaction encountered with streptomycin in this series of 23 patients occurred in the first patient treated, as already mentioned. If the maximum daily dose of 2 Gm. is not exceeded, there is little danger of undesirable effect from streptomycin. Until evidence is offered in favor of larger doses, this maximum should be followed. Only 1 patient had evidence of a reaction to the sulfonamide drug. On the eighth day of treatment, the appearance of dermatitis and fever necessitated our discontinuing treatment.

### EFFECT OF COMBINED TREATMENT ON THE CLINICAL COURSE OF BRUCELLOSIS

As with other infectious diseases, the cases were divided into acute and chronic on the basis of the duration of illness. A case was considered to be of chronic disease if the illness had persisted for three or more months. Unfortunately, the literature on brucellosis is perpetuating a more special connotation for chronic brucellosis. The term has come to mean an obscure and indolent illness without localizing abnormal physical observations, with little or no elevation of temperature, with absence of demonstrable bacteremia and, frequently, absence of agglutinins and with dermal hypersensitivity to Brucella antigen often a deciding factor in establishing the diagnosis.

It is to be recalled that the acutely ill patient with brucellosis will often benefit considerably from bed rest. As in malaria and tuberculosis, reduction of physical activity to a minimum affects the clinical course of brucellosis favorably. This feature must be taken into consideration in the evaluation of specific therapy. Fortunately, for the present purposes, several of the patients had been in bed without sustained relief. There were 13 patients who had been ill for less than three months. Br. abortus was isolated from 11 of these patients. The effect of combined therapy on the clinical course followed a fairly definite pattern. Within a few days after beginning treatment, the patients experienced subjective improvement. However, in the febrile patient normal temperatures were not sustained until the seventh to tenth day of therapy. None of the 13 patients with acute brucellosis failed to show improvement following treatment. Combined treatment effected just as favorable results in the febrile chronic condition as in the acute condition. In a few instances, fever persisted until streptomycin therapy was discontinued on the fourteenth or fifteenth day. The immediate result in 2 patients with bone lesions was satisfactory, although each of these patients had been ill and incapacitated for nine months.

TABLE 1.—*Incidence of a Clinical Relapse or Persistent Bacteremia*

| Time Elapsed, Mo. | Number of Cases | Number of Cases with Relapse or Bacteremia |
|---|---|---|
| 12 to 14 | 3 | 0 |
| 8 to 10 | 6 | 2 |
| 6 to 8 | 3 | 1 (bacteremia) |
| 4 to 6 | 3 | 1 |
| 2 to 4 | 3 | 0 |
| Less than 2 | 5 | 1 (bacteremia) |
| Total | 23 | 5 |

It is of interest that although some patients remained well up to a year following treatment, a high titer of agglutinins persisted in the blood. In fact, in no instance did the agglutinins disappear from the blood following therapy. There is no relationship between the titer of the agglutinins and the well-being of the patient. Dermal hypersensitivity also persisted.

### BACTERIOLOGIC AND CLINICAL RELAPSES FOLLOWING COMBINED THERAPY

Brucellosis is a deceptive disease with respect to evaluation of any therapeutic agent or agents. Spontaneous remissions and relapses have been known to occur with such frequency that the term "undulant fever" is still rather descriptive of the illness. Another complicating feature has been revealed in epidemiologic studies being conducted in this clinic. There is evidence that recurrent attacks of the illness in some patients may not represent relapses, but rather reinfections.

In table 1 is presented the time that has elapsed since the completion of treatment in the 23 cases and, also, the number of patients who have had either a clinical relapse or persistent bacteremia. It should be stressed that in the evaluation of specific therapy in brucellosis one should make just as thorough attempts to isolate Brucella organisms from the patients after therapy as before. If this had not been done in the present series, the bacteremia of 2 of the patients after the completion of treatment would have escaped detection. Both of these patients appeared and felt well at the time the post-therapeutic bacteremia was present. No further treatment was given, and they have remained well symptomatically. One of these patients received streptomycin and sulfadiazine for nine days and one for two weeks. One had been ill for one week and the other for three months. The clinical course of 1 of these patients is shown in the chart. This patient had been sick for three months and had received streptomycin and sulfadiazine for nine days and then sulfadiazine for thirteen more days. Follow-up studies of this patient two months after leaving the hospital showed that he was well and abacteremic.

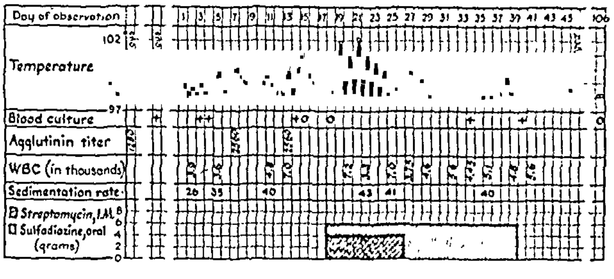

Chart showing the clinical course of a 60 year old man who was ill three months. (The sedimentation rate is expressed in millimeters per hour, Westergren.)

Only 3 of the 23 patients had a clinical relapse following treatment. However, 5 of the patients had been under observation for less than two months at the time of writing. One of the most remarkable instances of relapse was in a patient who had been ill for only three weeks. He received three courses of combined therapy, of nine, four and seven days each, and had a prompt clinical and bacteriologic relapse after each course. Finally, he was given streptomycin and sulfadiazine for fifteen days. At the time of last examination he had remained well and abacteremic for almost four months. A second patient had been ill for nine months and entered the hospital in a serious state of ill health with excruciating pain over the spine. He was given combined therapy for eight days, with dramatic improvement. He had a relapse four months later, with back pain due to spondylitis. He underwent another course of therapy, again with decided improvement. The third patient who had a clinical relapse was an instance of chronic brucellosis. In fact, he showed little improvement as a result of treatment. He had been in a state of ill health for over two years, suffering from weakness and an intolerance for physical activity. He had been thoroughly exposed to a herd of cattle with Bang's disease. Although he was afebrile and abacteremic, the subjective complaints and a significant titer of agglutinins for Brucella organisms warranted a trial of streptomycin and sulfadiazine for eight days. He recently completed a more prolonged course of treatment with the two drugs, followed by improvement, but the ultimate effect must await further observation.

In summary, then, experience with combined streptomycin and sulfadiazine therapy over a period of more than a year in 23 patients has revealed tht the clinical status of the acutely ill and febrile patient in the vast majority of cases is consistently improved as a result of treatment.

### APPEARANCE OF STREPTOMYCIN-RESISTANT STRAINS OF BRUCELLA AS A RESULT OF TREATMENT

As has already been stated, in vitro tests with over fifty strains of Brucella isolated from patients have shown that concentrations of 1.5 to 2.5 micrograms of streptomycin per cubic centimeter will completely inhibit growth of the organisms. In other words, strains of Brucella are sensitive initially to therapeutic concentrations of streptomycin. That sensitive strains of Brucella may become resistant to high concentrations of streptomycin both in vitro and in vivo has been demonstrated in this clinic. Hall and Spink[5] reported an instance in which a patient, who had subacute bacterial endocarditis due to Br. abortus, showed the appearance in his blood of Brucella organisms extremely resistant in vitro to streptomycin. This patient had received relatively large doses of streptomycin alone over a period of a month before the phenomenon was observed. Dr. James Shaffer, and more recently Dr. Ellard Yow, working in this laboratory, have demonstrated that a sensitive culture of Brucella contains a few highly resistant variants, in a proportion of a few resistant organisms to several billion sensitive organisms. The resistantce of Brucella to streptomycin is a genetic phenomenon, and a resistant culture results from the rapid multiplication of resistant variants originally present in the culture, and not as a result of adaptation or acquired resistance to the drug. A similar biologic phenomenon has been described for streptomycin and Hemophilus influenzae.

Table 2.—*In Vitro Resistance of Strains of Br. Abortus to Streptomycin in Patients with Persistence of Bacteremia After Treatment*

| Case Number | Dosage | In Vitro Resistance Before Treatment, Micrograms per Cc. | In Vitro Resistance After Treatment, Micrograms per Cc. |
|---|---|---|---|
| 1 | Streptomycin, 18 Gm. in 9 days; sulfadiazine, 13.2 Gm. in 22 days | 1.5 | 1.5 |
| 2 | Streptomycin, 29 Gm. in 15 days; sulfadiazine, 62 Gm. in 15 days | 1.5 | 1.5 |
| 3 | Course 1: streptomycin, 16.5 Gm. in 9 days; sulfadiazine, 66 Gm. in 9 days | 2.0 | 2.0 |
|  | Course 2: streptomycin, 8 Gm. in 4 days; sulfadiazine, 20 Gm. in 4 days | 2.5 | 2.5 |
|  | Course 3: streptomycin, 14 Gm. in 7 days; sulfadiazine, 62 Gm. in 13 days | 2.5 | 2.5 |
|  | Course 4: streptomycin, 43.5 Gm. in 15 days; sulfadiazine, 87 Gm. in 15 days | 2.5 | Not available |

In the light of the foregoing observations, it was of importance to determine whether the patients who had had bacteremia after the completion of treatment with streptomycin and sulfadiazine had cultures of Brucella containing predominantly resistant variants. Br. abortus was isolated from the blood of 3 patients after treatment. The data are summarized in table 2. It is to be noted that in no instance was the failure of therapy related to the appearance of a highly resistant culture

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5. Hall, W. H., and Spink, W. W.: In Vitro Sensitivity of Brucella to Streptomycin: Development of Resistance During Streptomycin Treatment, Proc. Soc. Exper. Biol. & Med. 64: 403 (April) 1947.

of Br. abortus. Of particular interest is the patient who received four courses of treatment; after the third course of combined therapy no essential difference was manifested in the resistance of the recovered organisms to streptomycin.

It is not clear why streptomycin-resistant strains of Brucella did not appear after treatment. The most likely explanation is that the organism recovered from the blood after treatment may have come from foci not reached by the streptomycin in the body. In this manner, streptomycin would not have had the opportunity to kill the sensitive variants. An additional factor may be that streptomycin-resistant variants are less likely to multiply in the presence of another antibacterial agent such as sulfadiazine. This latter possibility is being investigated.

### COMMENT

Brucellosis still remains a relatively common type of infectious disease. Physical and mental debilitation are associated with a protracted illness. Now that a more satisfactory form of specific therapy is available, it becomes more urgent to diagnose and treat brucellosis in the early stages of the disease. The specific treatment of chronic brucellosis poses a special problem that cannot be satisfactorily answered at this time. Although therapy with streptomycin and sulfadiazine has been under evaluation in our clinic and in other clinics for over a year, an optimum schedule of doses of the two drugs must await further studies. Investigations are also progressing with other chemotherapeutic agents and antibiotics.

### SUMMARY

The simultaneous administration of streptomycin and a sulfonamide, especially sulfadiazine, has been utilized in the treatment of 23 patients with brucellosis over a period of fourteen months. It is recommended that 0.5 Gm. of streptomycin should be injected intramuscularly every six hours for a total of 28 Gm. given in fourteen days. At the same time that treatment with streptomycin is begun, an initial dose of 3 to 4 Gm. of sulfadiazine is given orally and then 1 Gm. every four hours for at least fourteen days. One of the doses of sulfadiazine may be omitted routinely during the night.

The foregoing type of combined therapy has been followed by a relatively low number of relapses; toxic reactions to either drug have not been serious, and the appearance of streptomycin-resistant Brucella has not occurred. While combined therapy has proved effective in the febrile and bacteremic patient, with and without complications, its effectiveness in the obscure and indolent forms of chronic brucellosis require further investigation.

Note.—Since this paper was presented, two major developments have occurred in the treatment of brucellosis. First, it appears that the antibiotic aureomycin is a more satisfactory therapeutic agent than the combination of streptomycin and sulfadiazine and is now recommended for therapy in proved cases (Spink, W. W.; Braude, A. I.; Castaneda, M. R., and Goytia, R. S.: Aureomycin Therapy in Human Brucellosis Due to Brucella Melitensis, J. A. M. A., 138:1145 [Dec. 18] 1948). Second, if the combination of streptomycin and sulfadiazine is to be used, dihydrostreptomycin should be substituted for streptomycin. Dihydrostreptomycin has just as good antibrucella activity as streptomycin and provokes a smaller incidence of vestibular dysfunction if the total daily dose is 2 Gm. or less.

## ABSTRACT OF DISCUSSION

Dr. C. Wesley Eisele, Chicago: I am gratified to have this additional confirmation of the value of a method of treatment which in the spring of 1947 was reported independently by Pulaski and Amspacher and by McCullough and myself. The number of reported patients treated by this method now totals 50. We have data on 24 additional patients treated by us or reported to us in personal communications, bringing the total to 74 cases. The diagnosis in all except 7 of these was culturally proved, and all three species of Brucella are represented. There is a second case of endocarditis due to Brucella treated by Dr. George Finch of Des Moines, with apparent recovery. The method now appears to be the most effective treatment known for acute brucellosis, and it also has some merit in the proved, long-standing chronic disease, but there are several factors which should definitely temper enthusiasm. First, there is the ever present difficulty of evaluation of any therapeutic agent in a disease, such as brucellosis, which runs an erratic and unpredictable course. Many patients with acute brucellosis recover promptly with bed rest alone. Failure or relapse occurred in 13 of our 74 cases. This approaches the 20 per cent level. Some of these may eventually be shown to be due to inadequate dosage. The actual relapse rate is likely to be considerably higher, because all except a few of the patients in these series have been followed for less than a year and many for as short a time as two or three months. The most critical and convincing evidence supporting the usefulness of this method is provided by 4 cases. These are the 2 cases with suspected endocarditis due to Brucella with apparent recovery (as far as I know, no patient with endocarditis ever recovered before), and the first 2 cases reported in which streptomycin and sulfadiazine separately failed but the subsequent simultaneous use of the two drugs was successful. Our experience with the toxicity of this combined drug therapy has not paralleled that reported by Dr. Spink. Even with the small doses of 2 Gm. a day for fourteen days, we have observed a discouragingly high incidence of toxic reactions. In addition to the usual vestibular damage, we have noted objective evidence of involvement of other cranial nerves, the third, fourth, fifth, sixth and seventh. We strongly recommend that this treatment be reserved for the seriously ill and seriously incapacitated patient, the one who is unlikely to recover without it, the one whose illness is serious enough to warrant the risks involved. The ideal treatment for brucellosis awaits discovery.

Dr. Max Michael, Atlanta, Ga.: My question concerns the possible mechanism of action of the combined chemotherapy as used. The sulfonamide drugs alone apparently are not effective in the treatment of acute proved brucellosis, nor is streptomycin; yet in the test tube they both seem to be effective against the agent. The reason sometimes given for the failure is that the organism had an intracellular position in the host, comparable to a virus infection. I wonder whether Dr. Spink can explain why combined therapy should seem to work.

Dr. Walter Bauer, Boston: I have one question sent up to the platform: In view of the fact that diagnosis of chronic brucellosis is made with great frequency and oftentimes on inadequate clinical and laboratory evidence, I wonder whether Dr. Spink would be willing to go so far as to state that this treatment, which is not without complications, should be withheld unless clinical and diagnostic evidence of the type he has presented is at hand?

Dr. Wesley W. Spink, Minneapolis: I am interested to hear that Dr. Eisele has seen such a high incidence of toxic reactions due to streptomycin and sulfadiazine. We have observed only 1 patient out of 23 who had a toxic reaction. I would like to ask Dr. Eisele how many patients he has personally treated, and, of those treated, how many had toxic reactions. As to why the combination of streptomycin and sulfadiazine is effective against Brucella, when neither drug alone is of much value clinically, I do not know. We have observed in the experimentally infected chicken embryo that the combination has given the best results not only in protecting the embryos but in sterilizing the tissues as well, and a large number of agents have been tested in this manner. The complete data will appear in *The Journal of Immunology*. We have shown that the action of the combination of streptomycin and sulfadiazine is synergistic and not merely additive.

As far as Dr. Bauer's question is concerned, I do not believe that this combined treatment should be withheld if bacteriologic proof of the disease is lacking. We have seen many cases of brucellosis in packing plant employees. These persons, from an epidemiologic, clinical and laboratory point of view, have brucellosis. Agglutinins for Brucella are present in a high titer. However, try as we might, we cannot isolate Brucella from blood cultures of over 25 per cent of this group. One reason for this cultural difficulty is that the colony count of Brucella in the blood is relatively low, as pointed out by the Mediterranean Fever Commission many years ago. However, I have never seen a bacteriologically proved case of brucellosis in a human being without agglutinins over a period of eleven years. Dr. Eisele and Dr. McCullough have had a similar experience. Therefore, in a suspected case of brucellosis with negative blood cultures and without agglutinins, or agglutinins present in a low titer, I would not utilize this combined treatment. The higher the titer of agglutinins, the more likely will there be positive blood cultures. In doubtful cases, we culture not only venous blood but also aspirated sternal bone marrow. We have also cultured Brucella from excised lymph nodes.

Dr. C. Wesley Eisele, Chicago: In reply to Dr. Spink's closing comment, our experience has been much less extensive, in part because of the selection of cases. We have treated 7 patients, 4 of whom have had toxic reactions.

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# EARLY RENAL CARCINOMA IN SITU

## Detected by Means of Smears of Fixed Urinary Sediment

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and
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More and more stress has recently been laid on the importance of early carcinomas which have not as yet broken out of their parent epithelium to invade surrounding tissue and are hence known as "carcinomas in situ." At present, carcinoma in situ is well recognized as a type in the breast, cervix and stomach. The term is beginning to be applied to Bowen's "precancerous dermatosis" of the skin and to exactly similar lesions in the esophagus and anus.

Carcinoma in situ is readily detected in biopsies of the breast and cervix uteri, provided that the surgeon has been fortunate enough to obtain specimens coinciding with the affected areas. In the skin it is usually easily diagnosed on gross inspection, and biopsy is simple and conclusive. While this is also in a measure true of such tumors in the anal canal, it is manifestly difficult or impossible to obtain biopsy specimens from the esophagus, stomach or urinary tract, where they are either invisible or inaccessible.

The recently improved technic of desquamative cytologic diagnosis should come to one's aid in these unfavorable instances, provided always that the cells of the tumor are desquamating and can be recognized in smears. Thus, gastric or esophageal washings, or urinary sediments, should afford a means of detecting carcinoma in situ before it has become visible through an optical instrument, like the gastroscope or cystoscope. In the renal pelvis visualization is impossible; one must depend on the roentgenograms of intravenous or retrograde pyelography, and in the carcinoma in situ these will give little information, as this incipient tumor is noninvasive and does not produce detectable scarring or distortion. Furthermore, it lacks the bulk that would cast shadows or alter the density of tissue.

The case described here is of a carcinoma in situ of the renal pelvis and collecting tubules that was invisible on gross inspection even after the kidney had been surgically removed. Nevertheless, smears from urine obtained by ureteral catheterization were repeatedly reported by one of us (G. N. P.) as "class 5," indicating the presence of cancerous elements. Microscopic examination of the organ revealed small areas in the calices and pyramids of this kidney in which there was unmistakable evidence of carcinomatous change in the caliceal epithelium and in that of many of the collecting tubules as well. The conclusion as to the value of examining smears of urinary sediments is therefore obviously favorable.

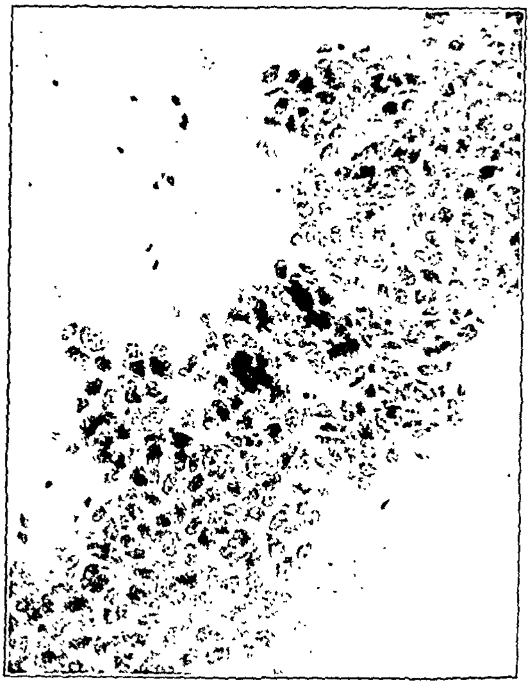

Fig. 1.—Enormous cluster of desquamated carcinomatous cells in smear of sedimented urine (X 265).

### REPORT OF A CASE

The patient was a white woman of 70 whose chief complaint was hematuria; aside from occasional burning in the urethral meatus she had had no symptoms referable to the genitourinary tract until approximately three weeks prior to admission to New York Hospital, when she noted a slightly bloody tinge to her urine. During the following fortnight there was hematuria every two or three days, and one week prior to admission she passed very bloody urine containing clots. Hematuria thereafter became continuous. She noted vague discomfort in both flanks, more pronounced on the left. Just before admission she suffered from frequency and urgency, passing a few cubic centimeters of bloody urine every twenty minutes or so. She had lost no weight.

*Family and Past History.*—Her family history is of some significance, as her mother and two sisters had died of cancer, the mother of "cancer of the liver." Her father's demise was attributed to "heart and kidney trouble." Two siblings were alive and well. Her history was otherwise irrelevant; she had been admitted to New York Hospital on three previous occasions for a variety of complaints, having suffered from a

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From the Department of Anatomy, Cornell University Medical College, New York.

*Dr. Carl J. Schmidlapp III, of the Department of Urology, New York Hospital, performed the nephrectomy, and the microscopic sections of the kidney for the study were supplied by Dr. John M. Pearce.*

prolapse of the urethral meatus, a urethral caruncle and arteriosclerosis.

*History in Hospital.*—Intravenous pyelograms showed a filling defect in the lower pole of the right kidney, but this was unconfirmed by subsequent retrograde pyelograms, which revealed nothing abnormal. During cystoscopy, however, it was noted that blood was issuing from the right ureteral orifice. Urinary samples were sent to the laboratory and smears prepared. The smear from a catheterized specimen from the left ureter was reported negative. Several specimens were taken from the right ureter; that of the ninth hospital day was classified as 3, and those of the fifteenth, seventeenth and twenty-second days were considered to represent class 5, or conclusive evidence of carcinoma. A sedimentation test and smear of urine from the bladder on the fifteenth day revealed class 4 cells. Thus there were three consecutive reports of class 5 cells in the smears from urine from the right ureter. One of these is illustrated in figure 1.

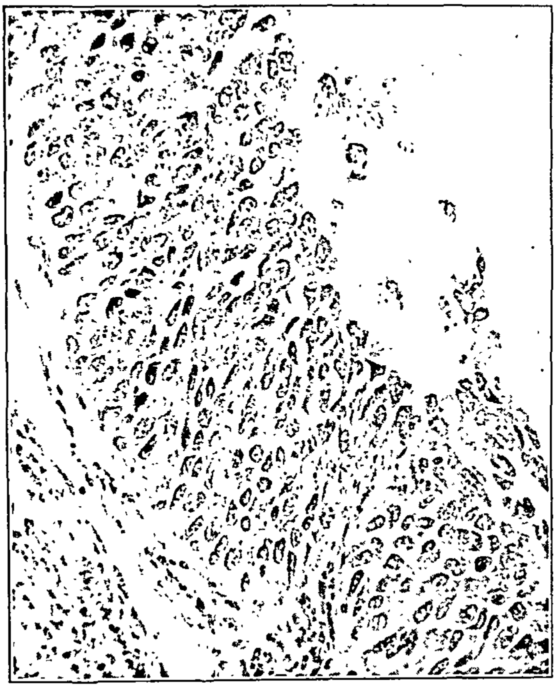

Fig. 2.—Transitional carcinoma confined to the mucosa of the calyx. The resemblance of this picture to that of any transitional carcinoma of the urinary tract may be noted (× 265).

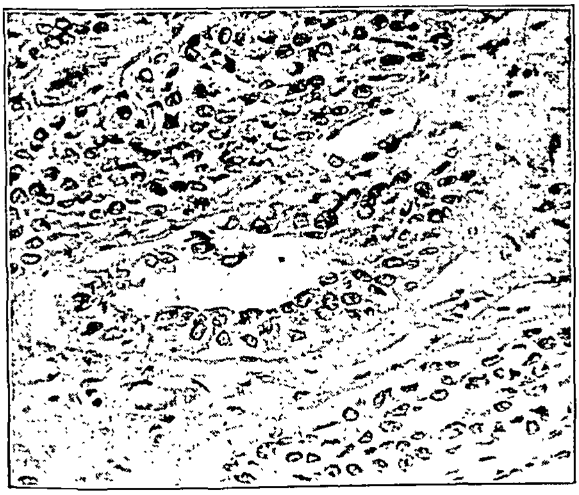

Fig. 3.—Carcinoma developing in the collecting tubules of the kidney. The cells differ considerably from those of the caliceal tumor; their cytoplasm is paler, and they tend to be less elongated (× 265).

On the basis of these reports and the observation of frank hematuria from the right ureter, the right kidney was removed on the twenty-fourth hospital day and sent to the Department of Surgical Pathology for examination.

*Pathologic Observations.*—The organ weighed 97 Gm. Nothing of importance was grossly discernible in its parenchyma, but in the inferior calyx there was a little blood and the mucosa showed areas of hemorrhage. There were scattered petechial hemorrhages in the mucosa of the ureter removed with the specimen. There was no gross evidence of carcinoma. The smears were reviewed, and the diagnosis of carcinoma was still maintained.

Microscopic sections were completed by the Department of Surgical Pathology from blocks taken from four calices, and carcinoma in situ was demonstrable in three of them. This was not limited to the pelvic mucosa, but existed both there and in many collecting tubules as well. There were two types of change: the pelvic epithelium showed early transitional carcinoma in situ (fig. 2), while that of the tubules was of the type generally known as "tubular carcinoma" (fig. 3). In the latter the caliceal epithelium adjoining and continuous with that at the debouchment of the collecting tubules was of the tubular, rather than the transitional, type. The cells were pale, more or less cuboidal and possessed large hyperchromatic nuclei that were manifestly abnormal. Anisocytosis and anisokaryosis were present, and many mitotic divisions were demonstrable. The histologic features of the growth thus coincided accurately with that of the smears of urinary sediment. Nowhere was there any evidence of invasion of the renal stroma; the tumor was completely in situ.

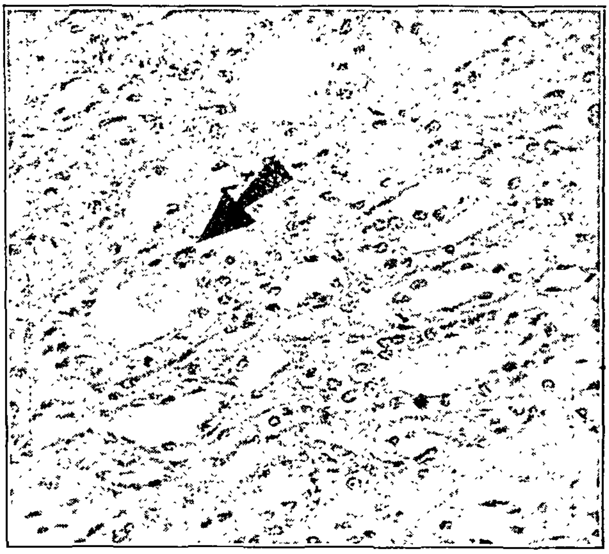

Fig. 4.—Section from above the tubular carcinoma; it shows relatively normal epithelium excepting for a few hyperchromatic nuclei and the very large metaplastic cell marked by the arrow (× 265).

## COMMENT

That the neoplasm involved the collecting tubules by direct extension along them from the pelvis (a mechanism that is all too frequently postulated for carcinomatous spread) was nowhere demonstrable. Instead, as the tumor was traced upward along these tubules it was seen to fade out gradually; a point was found where the epithelium became almost normal, but carcinomatous cells could be seen lying singly or in groups of two or three, intercalated among normal cells of the tubule (fig. 4). They were so integrated with these normal elements that they gave the impression that metaplasia was affecting single normal cells in a given area and that the abnormal products of this process were multiplying in situ and producing multicentric foci of carcinogenesis. Somewhat similar foci were readily found in the caliceal mucosa. It appeared likely that an entire district in the kidney, in and adjacent to the pelvis, was undergoing piecemeal metaplasia of its elements. There was nothing to indicate that a single focus in the caliceal epithelium had become carcinomatous and was expanding upward along the tubules. It is noteworthy that there were many clusters of cancerous cells either detached or in the process of desquamation from the surface of the tumor (fig. 5). *It is these clusters that appear in the smears* of urinary sediment, and the profuse desquamation of cancerous cells observed in this case is, therefore, strongly in support of the idea that carcinomas in situ do indeed shed their elements freely. This feature is pregnant with diagnostic possibilities in the case of carcinoma in situ in inaccessible areas of the body.

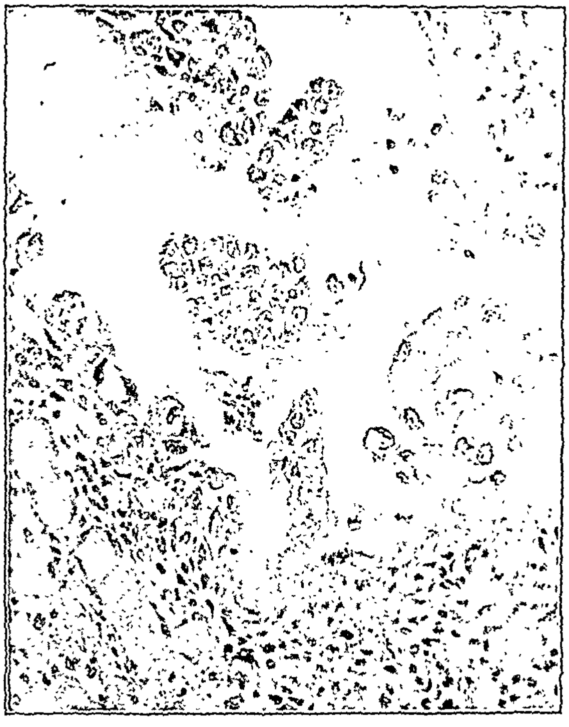

Fig. 5.—Clusters of desquamated cells in the tip of the calyx, ready for discharge in the urinary stream (× 265). (Compare with figure 1 and note similarity.)

There is little need for detailed discussion, as the facts speak for themselves. Whether a surgeon should undertake a nephrectomy on the basis of repeated positive reports of cancerous elements in the urine from the affected side might appear debatable; whether he should so proceed when these reports are supported by the presence of manifest ureteral bleeding on that side may seem less so. The main point to be borne in mind is the fact that in this case a tumor, invisible to the naked eye, was detected and ablated while it was still in its incipiency and the procedure was amply justified by the microscopic sections from the kidney in which it was developing.

Naturally, before undertaking this drastic course, the surgeon must have complete confidence in the acumen and competence of the cytologist who makes the diagnosis on the urinary smears. Unless the examiner be thoroughly versed in the technic and unless he make a diagnosis of "conclusive evidence of carcinoma, class 5," disastrous results might ensue. Another point might be stressed: for good results from nephrectomy in the case of these highly malignant tumors of the conducting apparatus, which have been found to be most refractory to surgical treatment (Foot and Humphreys[1]), it is imperative that they be recognized and removed before they have become invasive and metastatic. In the past this has proved to be almost impossible.

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## MODIFICATION OF BIOLOGIC RESPONSE IN EXPERIMENTAL HYPERSENSITIVITY

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Recently there has been wider acceptance of the view that a particular group of diseases and certain reactions to therapeutic agents occur on the basis of an acquired hypersensitivity. There is evidence that rheumatic fever, glomerulonephritis, serum sickness and periarteritis nodosa belong in this category,[1] and some have added to this group acute disseminated lupus erythematosus and scleroderma.[2]

The lesions of acute glomerulonephritis and rheumatic fever generally occur after a definite interval following infection, and lesions resembling periarteritis nodosa have appeared after an interval following the administration of certain drugs or a foreign serum.[3] It has generally been accepted that the development of host hypersensitiveness during this interval is the essential pathogenetic basis for the subsequent morphologic alterations characteristic of these diseases and that the lesions observed result from the union of the responsible antigen with its antibody in the tissues of the

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Read in the Session on Allergy before the Section on Miscellaneous Topics at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

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sensitized host. The contention that an antigen-antibody mechanism is involved is further supported by the observation that an increased serum gamma globulin fraction is common to this group of diseases.[4]

The recognition of a hypersensitivity factor in this group of diseases has led to numerous experimental attempts to produce similar vascular and other lesions. Such lesions have been produced by Longcope,[1b] Gerlach,[1f] Vaubel,[5] Masugi,[6] Cavelti and Cavelti,[7] Knepper[8] and Klinge[9] and, since Rich and Gregory[10] reawakened interest in the problem, by a number of more recent investigators.[11] Most of these experiments have been performed with rabbits with large intravenously administered doses of horse serum as the sensitizing antigen. The considerable variation (0 to 88 per cent) in the incidence of the vascular lesions[11c, d] somewhat limits the usefulness of this experimental method as it has been used to the present. Much more study should be given to an analysis of the factors influencing the development of the unmodified lesion in the rabbit, particularly with a view to developing strains of uniformly high susceptibility.

Despite these limitations in the experimental approach, however, the lesions of serum hypersensitivity have been observed by some to occur with sufficient frequency to permit studies of the basic mechanism involved and methods of preventing the lesions, the ultimate objective being to discover agents useful in the treatment of the diseases in human beings. Most of the recent investigations have indeed been concerned with efforts to prevent the development of the experimental lesion.

Salicylates, numerous antihistaminics, anticoagulants and agents with specific toxic actions, such as colchicine and the nitrogen mustards, have been used in the experimental animal. Modification or prevention of the lesions by these agents has been attempted on the assumption that they might act by (1) inhibiting the antigen-antibody combination, (2) neutralizing the end products of antigen-antibody combination which might have deleterious effects on the tissues, (3) preventing an intracellular coagulative process which may lead to cell death[12] or (4) suppressing the production of antibodies. Many of these agents have been studied as well for an in vitro effect on antigen-antibody combination.

Kyser, McCarter and Stengle[11f] presented evidence that diphenhydramine hydrochloride (benadryl hydrochloride®) (Parke, Davis & Company) and drug *1627* (G. D. Searle & Co.), another antihistaminic agent, impeded the development of serum-induced myocardial lesions in rabbits. These observations have not been confirmed. Several investigators have found that the antihistaminic drugs do not interfere with antigen-antibody combination in vitro or prevent the formation of antibody by the sensitized animal.[13]

Salicylates have been used more frequently than other agents in attempts to prevent these experimental lesions. Their use stems from early observations by Swift and his co-workers, that salicylates impede antibody formation in immunized rabbits and human subjects while favorably affecting the course of human serum disease.[14] In attempts to define the basis for this effect, Coburn[15] demonstrated that antigen-antibody combination in vitro was decidedly impaired by salicylates. However, the concentration required was at least 30 times the therapeutic level achieved by maximal administration of the drug. Jager and Nickerson[16] have recently found a suppression of antibody formation and a pronounced reduction in local and systemic reactions to typhoid vaccine administered to human subjects maintained for three weeks on salicylates with plasma concentrations of 300 to 410 micrograms per cubic centimeter. To the contrary, however, Scherer[13e] found no depressing effect of salicylates on the production of Rh antibodies in the rabbit.

Contradictory results have been obtained by the several investigators who have studied the effect of salicylates on the development of vascular lesions in the serum hypersensitized rabbit. Smull, Wissler and Watson[11g] and Sullivan[11h] reported that salicylates inhibit the production of endocardial and diffuse arterial lesions, respectively. Ehrich and Forman,[11i] using doses of salicylates to the limit of tolerance, found, on the other hand, no effect on the development of the vascular lesions.

Ehrich and Forman[11i] also studied the effect of dicumarol.® They reported a slight inhibition of antibody production, no effect on the arterial lesions and a strong inhibition of in vitro antigen-antibody combination. They have also observed that colchicine exerts a decided inhibiting effect on antibody production and the development of arterial lesions.

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Nitrogen mustards have been used in attempts to prevent the lesions of experimental hypersensitivity because of their known effect on inhibiting antibody production, as first demonstrated with the sulfur mustards by Hektoen and Corper.[17] Philips and his co-workers[18] used ricin in goats and found that an anamnestic antibody response could be inhibited by *tris* (β-chloroethyl)amine hydrochloride. Similar observations were made with the bis compound by Spurr,[19] who used typhoid bacilli as the antigen and the rabbit as the experimental animal, and by Janeway and his co-workers,[20] employing large doses of bovine gamma globulin in rabbits. The effect of this suppression of antibody formation on the lesions of experimental hypersensitivity is still under study by the latter group.

In our own approach to the problem we first studied the effect of intravenous administration of histamine to determine whether vascular lesions similar to those of experimental hypersensitivity could be so produced. In a series of 11 rabbits receiving daily intravenous injections of 0.1 mg. of histamine base per kilogram of body weight for periods varying from one to sixty-two days, with total administered dosage ranging from 0.55 to 13.6 mg., no such lesions were produced.

We have studied the persistence of circulating antigen, the development of circulating antibodies, the Arthus reaction and vascular lesions in rabbits receiving horse serum according to the method employed by Rich,[10a] and the influence on these phenomena of neohetramine® (N, N-dimethyl-N′-[p-methoxybenzyl]-N′ [2-pyrimidyl] ethylenediamine hydrochloride) (Nepera Chemical Company), diphenhydramine hydrochloride, heparin and methyl-bis (β-chloroethyl) amine hydrochloride. The serologic studies were performed on serums obtained at weekly intervals. The tests for antigen employed a rabbit anti-horse serum in a tube centrifugation technic. A similar method using horse serum in a dilution of 1 : 10,000 was employed in testing for antibody. Direct observations of the Arthus reaction were made immediately and twenty-four hours after the injection of horse serum into the dorsal skin. In addition, fluorescein was used to study the reaction in the following manner: Immediately after intradermal injection of serum, fluorescein was injected intravenously and the sites observed under ultraviolet rays.[21] When fluorescence occurred it appeared immediately at the site, increased only slightly in intensity for about twenty minutes and subsided within several hours. It was noted that the normal rabbit skin seldom reacted to histamine with either erythema or whealing and that histamine sites generally did not fluoresce when studied with this technic. In view of these and subsequent observations, it seems likely that the substances liberated in the Arthus reaction in rabbits do not bear a close relationship to histamine.

In the first experiment with antihistaminic drugs, 14 rabbits received horse serum and 6 of these were given neohetramine® subcutaneously in doses of 10 mg. per kilogram of body weight twice daily. In all 6 rabbits receiving neohetramine,® antibodies, Arthus reactions and arteritis developed. In the 7 serum control animals tested, antibodies and Arthus reactions developed and 5 of this group had arteritis. In the doses used, neohetramine® did not affect the development of circulating antibodies, the Arthus reactions or arterial and endocardial lesions.

In the second experiment, 10 rabbits received horse serum and 6 were given benadryl® subcutaneously, in doses of 10 mg. per kilogram of body weight twice daily. Antibodies developed in all of the rabbits, and all but 1 receiving benadryl® showed Arthus reactions. One of the rabbits receiving diphenhydramine hydrochloride showed arterial lesions, whereas none were found in the untreated group. It is of interest that 2 of the rabbits in the group treated with diphenhydramine hydrochloride and 4 in the untreated group died in shock on the twentieth or twenty-first day following the second injection of horse serum intravenously. In none of these 6 rabbits were vascular lesions seen.

In summary of the first two experiments it may be stated that (1) in all animals, whether or not they had been treated with antihistaminic drugs, antibodies developed, (2) all of the rabbits except 1 in the group treated with diphenhydramine hydrochloride showed Arthus reactions of varying intensity and (3) the incidence of arterial lesions bore no relationship to the occurrence of anaphylactic shock or to treatment with the antihistaminics. There was considerable difference in the incidence of vascular lesions in the two experiments: 85 per cent in the first and only 10 per cent in the second experiment.

In a third experiment, bovine gamma globulin (The Armour Laboratories), and diphenhydramine hydrochloride were used. Gamma globulin was injected intravenously in single doses of 1.0 Gm. per kilogram of body weight into 10 rabbits. Five of these animals also received diphenhydramine hydrochloride subcutaneously in doses of 10 mg. per kilogram of body weight twice daily for sixteen to eighteen days, at which time all rabbits were killed. In all of these animals circulating antibodies and well defined Arthus reactions developed. No arterial or endocardial lesions were observed in any of the animals.

All rabbits in these three experiments either maintained their weight or increased in weight throughout the period of observation.

Experiments with 21 additional rabbits that were given intravenous injections of horse serum were complicated by the occurrence of an epizootic diarrhea. Eight of these rabbits received daily doses of diphenhydramine hydrochloride; 5 received neohetramine,® and 8 were controls receiving serum only. Five of the 21 animals were killed on the twenty-eighth to the thirty-first day following administration of the serum; 6 died between the fourteenth and twenty-third days and 10 between the first and eleventh days. Circulating antibody and cutaneous hypersensitivity were present in those surviving at least fourteen days, but neither arterial nor endocardial lesions were found. Because of the complicating disease, these 21 rabbits have not been included in our calculations of the incidence of vascular lesions. It is still of interest, however, that in control and treated animals in this group Arthus reactions and circulating antibody developed, again independently of vascular lesions.

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Six sensitized rabbits were selected for an experiment to determine the effect of heparin on the Arthus reaction. Cutaneous sites were injected with 0.1 cc. amounts of horse serum. Three hours later 50 mg. of heparin in Pitkin's menstruum were injected subcutaneously. About ten hours later, when the clotting time was decidedly prolonged, a second series of intradermal injections of horse serum was made. The immediate and delayed reactions before and after administration of heparin were of equal intensity. Sections of the sites injected before and after administration of heparin showed pronounced edema and vascular necrosis. the tissue reaction after heparin being somewhat more intense.

The unpredictable and generally low incidence of vascular lesions in horse serum-sensitized rabbits led us to a brief investigation of local passive transfer as a tool to study further the nature of in vivo antigen-antibody reactions and the agents which might modify this reaction. This study is still in progress and has been only moderately successful to the present, apparently because of the comparatively low antibody content of the serums used.

Our most recent studies have been concerned with the effect of nitrogen mustard on the antibody production, Arthus reaction and vascular lesions in horse serum-sensitized rabbits.[22] Five rabbits were initially given intravenous injections of 0.5 mg. per kilogram of body weight of the bis compound each fourth day for a total of seven injections. On the second day after the third injection each rabbit received intravenously 10 cc. of horse serum per kilogram of body weight. The same amount of horse serum was given to each of 5 rabbits comprising a control group. In all rabbits receiving nitrogen mustard a bleeding tendency and pronounced luekopenia developed. On the seventeenth day all 10 animals were killed. None of the rabbits treated with nitrogen mustard showed endocardial or arterial lesions. Four of the 5 controls showed arterial and/or endocardial lesions. All 5 of the untreated rabbits showed circulating antibody on the seventh day after serum injection. whereas none of the rabbits treated with nitrogen mustard had circulating antibody at this time. Serum pools prepared from each group on the day the animals were killed were studied by means of the quantitative precipitin reaction for total antibody content. The untreated group had approximately twice as much circulating antibody as the group treated with nitrogen mustard.

The intensity of the Arthus reactions manifested by the two groups was compared. Parallel cutaneous sites were prepared by intradermal injection of 0.2 cc. amounts of horse serum diluted 1 : 1, 1 : 5, 1 : 10, 1 : 20 and 1 : 40. Immediate reactions were of approximately equal intensity for the two groups as observed by the fluorescence technic, but a striking difference in the intensity of the reactions was noted at twenty-four hours. All in the untreated group showed hemorrhagic Arthus reactions in the two highest concentrations of horse serum, whereas none of the rabbits treated with nitrogen mustard showed hemorrhage at any of the sites. The untreated group showed moderately intense reactions to the higher dilutions of horse serum, and only 1 in 5 did not react to the 1 : 40 dilution, whereas the reactions of the treated group diminished rapidly in intensity with increasing dilution, only one of the 5 showing any reaction in the 1 : 40 dilution.

## COMMENT

The clinical evidence reported supports the view that certain diseases and reactions to some drugs and foreign proteins occur on the basis of an acquired hypersensitivity. The exact nature of the antigens and antibodies involved in most instances has not been determined. Morphologic changes resembling those of the human diseases, however, have been produced in the experimental animal by injections of foreign proteins. This resemblance appears close enough to encourage the search for agents capable of modifying the experimental lesions as a guide to the development of measures useful in the prevention or treatment of the diseases in human beings.

The unpredictable occurrence of the lesions has, to date, impeded advances by this experimental approach. Genetic, constitutional and other factors comparable to those operative in determining in which persons acute glomerulonephritis or rheumatic fever will develop may also determine the incidence of vascular and other lesions in sensitized rabbits. An analysis of these factors and the development of constantly reacting strains of experimental animals are needed. Until these factors are better controlled and appropriately reacting strains are developed, the use of passive transfer may offer a partial solution.

Since the basic mechanism of tissue alterations in hypersensitivity is presumed to be an antigen-antibody combination in tissue, there has been much interest in determining the relationship of antibody levels to general and local anaphylaxis and vascular lesions. Studies by Grove[23] and Jackson[24] demonstrated a lack of correlation between antibody level and the occurrence of general anaphylaxis, but a direct correlation between antibody levels and the severity of the Arthus reaction has been observed repeatedly.[25] In regard to the relationship between vascular lesions and Arthus reactions, Fox and Jones[11a] reported a direct correlation, systemic vascular lesions occurring with the severer necrotizing Arthus reactions. Hopps and Wissler[11b] reported "poor quantitative correlation" between "the degree and extent of arteritis" and precipitin formation or cutaneous hypersensitivity. In our own experiments we were unable, on the basis of antibody response, the occurrence of anaphylactic shock and the intensity of the Arthus reaction, to predict which rabbits would exhibit arterial lesions. The only correlation in this respect was the invariable presence of circulating antibody and Arthus reactions in those rabbits with systemic vascular lesions. Some host factor in addition to, or separate from, the humoral antibody response may well be operative in the pathogenesis of the vascular lesions of experimental hypersensitivity. In this regard, the experiment with nitrogen mustard is of particular interest. Our observations showed nitrogen mustard to suppress development of antibody, cutaneous hypersensitivity and vascular lesions. Whether the parallel suppression of these phenomena indicates their interdependence is under investigation.

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That the occurrence of vascular lesions may be related to an ability to produce antibody is suggested by a study of Callender and Race,[26] who reported a patient with diffuse lupus erythematosus showing a "remarkable liability to undergo isoimmunization" and "proneness to make isoagglutinins in response to the introduction of antigens which are ignored by most people."

In summarizing our work and reported attempts to prevent or modify the lesions in horse serum–sensitized rabbits it becomes apparent that (1) the antihistaminics, diphenhydramine hydrochloride and neoheteramine,® have no demonstrable effect on antibody production, in vitro antigen-antibody combination or the development of Arthus reactions and vascular lesions, (2) the effect of salicylates on these phenomena has been neither constant nor profound but deserves further study, (3) the anticoagulants have demonstrated no inhibiting effect on the lesions, but dicumarol® has been shown to inhibit in vitro antigen-antibody combination, and (4) among agents with particular cytotoxic properties, the nitrogen mustards effected pronounced inhibition of antibody production, Arthus reactions and vascular lesions. Therefore, of the agents investigated thus far for their ability to modify the development of vascular lesions in the horse serum–sensitized rabbit, that which exerted a profound depressing effect on the development of antibodies and the Arthus reaction was found also to be most effective in preventing the vascular lesions, namely, the nitrogen mustard, methyl-*bis* (β-chloroethyl) amine hydrochloride.

## ABSTRACT OF DISCUSSION

Dr. Samuel M. Feinberg, Chicago: The production of arterial lesions following the injection of horse serum or the use of sulfonamide drugs created a great stir among those concerned with allergic phenomena. Drs. Dammin and Bukantz have shown that the production of such lesions is by no means constant or predictable, an observation which immediately throws doubt on any type of experiment attempting to modify the genesis of such vascular changes in a small series of animals. They have shown further, contrary to some previous reports, that the use of antihistamine drugs does not prevent the formation of the lesions. This, coupled with their inability to produce vascular lesions by injections of histamine, leads them to believe that histamine is not the basis for this action. Such an inference is not necessarily true. That antihistamine drugs given repeatedly after serum administration in human beings does not prevent the onset of serum sickness is well known. Yet, these same drugs relieve the symptoms of the latter, probably by their antihistamine action. By the same token, it would be possible to conceive that periarteritis nodosa may be caused by histamine and yet not be prevented by antihistamine drugs. Since the lesions are irreversible, no symptomatic benefit might be expected. The negative results in the experiment in which histamine was injected intravenously in no way precludes the possibility of localized and concentrated release of histamine being responsible for the lesions of arteritis. The lack of inhibition of antibody formation confirms my experience. This is significant when one considers what effect these drugs might have on the production of protective antibodies which one attempts to produce by specific desensitization in order to give the patient clinical immunity. The question frequently arises: Do the antihistamine drugs interfere with the effects of desensitization? The answer, from my experience, strengthened by the work of these authors, is that they do not. The experimental work with nitrogen mustards is stimulating. I hope that the doctors will not rush to treat patients with rheumatic fever and similar diseases with these compounds. The toxic reactions to the nitrogen mustards are by no means slight. In addition, there is a great probability that any agent which will prevent or destroy a sensitizing antibody will also similarly affect desirable antibodies, such as those having to do with the protection against infectious disease.

# COARCTATION OF THE AORTA

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The examination of a large proportion of the youths of this country by the various examiners of the selective service boards resulted in a considerable number of rejections for military service because of persistent elevation of the blood pressure. Many of these persons were advised to consult their family physicians for advice and treatment. A small but important percentage of them are suffering from coarctation of the aorta. The prognosis in the past for patients with coarctation of the aorta has been poor because of the propensity of the condition to result in heart failure, rupture of the aorta above the coarctation, cerebrovascular accident or subacute bacterial endocarditis. The recent development of a surgical technic for correcting this anomaly, which when untreated results in such a limited life expectancy, makes it imperative that all physicians be alert to the possibility of this condition when confronted with hypertension in a young person.

There is little to add to the excellent reviews covering the general aspects of coarctation of the aorta. However, we would like to review some of the diagnostic points. Generally speaking, the diagnosis is not difficult if the examiner considers the possibility of the presence of coarctation. Most patients with coarctation of the aorta have no symptoms but present themselves because a routine physical examination has disclosed a persistent elevation of the blood pressure. Not infrequently a diagnosis of essential hypertension is made and they are referred for lumbodorsal sympathectomy. Symptoms such as headache, dizziness, nervousness and tension, while they may occur, usually are absent. If the condition has persisted until the myocardial reserve is diminished, dyspnea may be present on exertion. Unfortunately, in some cases the first symptoms may be related to an accident to the vascular system. When examining a hypertensive patient, the physician should always check the abdominal aorta and femoral arteries for pulsations. If they are diminished or absent, coarctation of the aorta should be suspected and confirmatory evidence sought. The presence of pulsations in the dorsalis pedis and posterior tibial arteries is not sufficient to exclude coarctation of the aorta, since pulsations may occasionally be present in that condition when collateral circulation is adequate. If pulsation in the

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26. Callender, S. T., and Race, R. R.: A Serological and Genetical Study of Multiple Antibodies Formed in Response to Blood Transfusion by a Patient with Lupus Erythematosus Diffusus, Ann. Eugenics 13: 102, 1946.

From the Department of Surgery (Dr. Adams) and the Department of Internal Medicine (Dr. Rutledge and Dr. Souders), The Lahey Clinic.

aorta and femoral arteries is absent, a careful search should be made for evidence of unusual pulsations in the intercostal arteries. These arteries play an important role in the development of the collateral circulation, and their enlargement may be so great as to be easily detected by palpation. Campbell and Suzman [1] have called attention to a new diagnostic sign in cases of coarctation of the aorta. They noted that when the patient stoops or bends forward, with the arms hanging by the side, collateral arteries may be seen under the skin of the back and sides of the thorax where none were visible before. They explain the phenomenon by the fact that this position widens the costoclavicular space, which in the erect posture is narrow enough to cause slight obstruction to the dilated subclavian artery in coarctation of the aorta. Widening of the space removes the obstruction and allows the vessels to fill.

The arterial pressure in the arms should be compared with that in the legs. Normally, it is higher in the legs than in the arms, but this situation is reversed when coarctation is present. Indeed, the pressure in the legs may be so low that it cannot be measured, which is also a highly significant observation.

Auscultation of the chest may reveal a characteristic murmur of coarctation of the aorta. It is loud, rough, systolic in time, clearly heard along the left sternal border and usually equally clearly heard in the back along the left margin of the vertebral column. Not infrequently, the systolic murmur will be followed by a soft blowing diastolic murmur. A systolic thrill may or may not be present. This murmur has often led to the erroneous diagnosis of rheumatic heart disease. The loud quality of the murmur in the back, however, tends to differentiate the two conditions.

Theoretically, examination of the ocular fundi should prove helpful in the differential diagnosis, as one would not expect to find evidence of unusual sclerosis or spasm of the retinal vessels in coarctation. Several patients with coarctation have recently been seen who presented some unusual features. Although the vessels of the fundi did not show the postangiospastic state, evidence of unusual sclerosis or the usual tortuosity seen in arteriosclerosis, they did present a wavy appearance with broad sweeping curves, while the vessel walls presented a normal appearance.

The roentgenogram of the thorax often renders valuable aid to the diagnosis of coarctation of the aorta. All too frequently, the diagnosis is first suspected by the roentgenologist. The increased blood flow through the intercostal vessels results in the characteristic notchings along the inferior margins of the ribs. This observation may be absent, however, and one should not rely on it to make the diagnosis. Reifenstein, Levine and Gross [2] reported its presence in 75 per cent of their series of 43 cases.

Angiography with 70 per cent iodopyracet injection (diodrast®) (fig. 1) by the method of Robb and Steinberg [3] may sometimes be used. While seldom required for the diagnosis of coarctation, it may give information which is helpful to the surgeon in planning the type of operation and surgical approach. In this technic, after proper preparation, 40 cc. of the iodopyracet is injected through a cannula into an antecubital vein as rapidly as possible, and several roentgenograms of the thoracic area are made in rapid succession as the concentrated opaque material progresses through the various chambers of the heart and great vessels. The time of exposure after injection has been determined previously by measuring the circulation time from arm to lung and arm to tongue by the use of ether and dehydrocholic acid (decholin®) or calcium gluconate. As many roentgenograms are made as is possible with the equipment available. Since the time for the progression of the iodopyracet injection through the heart and vessels is a matter of a few seconds, some arrangement must be made for rapid change of cassette.

The value of the method is limited by the difficulty of exposing several films at proper intervals and the fact that the opaque medium, after passing through the pulmonary artery, the lungs and back to the heart, may be so diffused as to cast only a faint shadow in the region of the aorta where it is most desired.

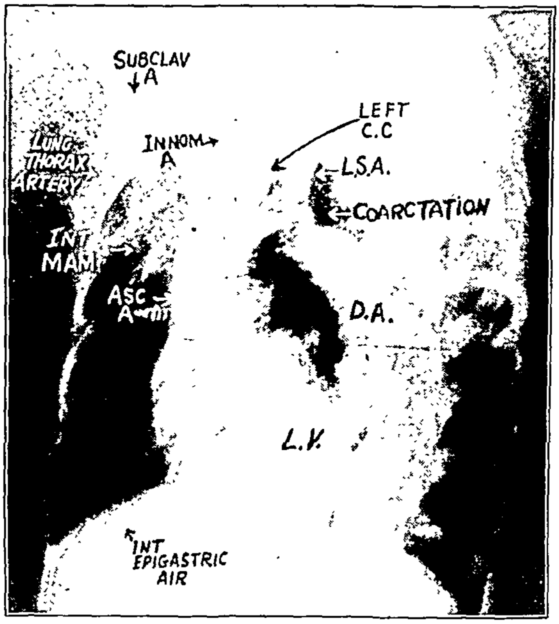

Fig. 1.—Angiograph with excellent visualization of coarctation. (Angiography supplied by Dr. Israel Steinberg, New York; published with permission of Year Book Publishers, Inc., from "Vascular Diseases in Clinical Practice," by Dr. Irving S. Wright, 1948, p. 65.)

Most patients have a considerable reaction of a vasomotor type to such rapid injection of iodopyracet, and a temporary period of syncope or shock ensues. Urticaria has occurred and may prove troublesome, and death has been reported following the test.

The procedure should not be undertaken without adequate equipment, a trained team and a careful consideration of the value to be gained weighed against the possible dangers. Nevertheless, at times this method may serve to show the position, degree and extent of the narrowed area of the aorta and the amount of collateral circulation, and for these reasons may be worth while.

The age of the patient has an important bearing on the selection for surgical treatment. The vessels of younger patients lend themselves to this type of operation better than those of the older patients, since they are more elastic and less friable. This is especially important if the constricted area is to be resected and the two ends of the aorta are to be anastomosed. Gross[2] placed the age limit between 6 and 25 years for this type of operation. Since the diagnosis may not be made until the patient is in his middle or late twenties, the surgeon should be prepared to carry out procedures other than the direct anastomosing of the two portions of the aorta. It is in these cases that the operation of Blalock and Park[4] warrants consideration. In this procedure the left subclavian artery is anastomosed to the descending aorta below the site of the coarctation. This method was used successfully in a man 34 years of age, according to reports from the Mayo Clinic.[5]

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[1] Campbell, M., and Suzman, S.: Coarctation of the Aorta, Brit Heart J. **9:** 185-212 (July) 1947.

[2] Reifenstein, G. H.; Levine, S. A., and Gross, R. E.: Coarctation of Aorta: Review of One Hundred and Four Autopsied Cases of "Adult Type" Two Years of Age or Older, Am. Heart J. **33:** 146-168 (Feb.) 1947.

[3] Robb, G. P., and Steinberg, I.: Visualization of Chambers of Heart, Pulmonary Circulation and Great Blood Vessels in Heart Disease: Preliminary Observations, Am. J. Roentgenol. **42:** 14-37 (July) 1939.

### MANAGEMENT IN FIVE CASES

In the past year we have resected five coarctations in adults, all of whom have survived their operations without complications and have subsequently had a lowering of their blood pressure to within normal levels. Their ages and sex, respectively, were: male 24, male 21, female 36, male 20 and male 35. Their preoperative systolic blood pressures averaged well over 200 mm. and their diastolic over 100 mm. Interestingly enough, these patients required one to three weeks after operation for stabilizing of their blood pressure at from 140 to 150 mm. systolic and from 80 to 90 mm. diastolic. They all remained in the hospital three weeks following operation, were kept recumbent with medium head rest for the first week, were allowed to sit over the edge of the bed for increasing intervals during the second week and were allowed up and mobilized gradually during the third week before discharge. Their postoperative courses were uniformly smooth, comfortable and uncomplicated. They all had intercostal drainage on suction for five to seven days after operation, and none required thoracentesis for a later effusion. Administration of penicillin was continued during the first week postoperatively and for at least forty-eight hours after the tube was removed. An oxygen tent was used on the patient's return from the operating room, but continued only until the following morning, when it was ascertained definitely that the left lung was well expanded and functioning adequately, and then the patient was gradually removed from the oxygen tent during the first and second postoperative days.

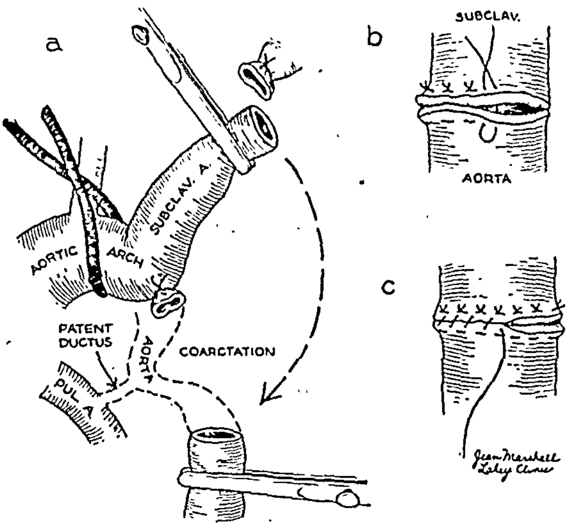

Fig. 2.—*a*, Resection of coarctation and mobilization of subclavian artery for end to end anastomosis with descending thoracic aorta; *b*, detail of end to end anastomosis, everting interrupted sutures around the entire circumference; *c*, everted edges reinforced with continuous sutures, each covering half the circumference.

All 5 patients were operated on under endotracheal ether anesthesia administered by highly trained anesthetists, on whom rests considerable responsibility for the maintenance of the general status of these patients throughout a long and hazardous procedure. The left thorax was opened widely through a posterolateral incision, resecting the fifth rib and cutting the fourth, sixth and seventh ribs behind their angles. In going through the thoracic wall, extensive arterial collateral circulation was encountered throughout the scapular and thoracic wall muscles. The intercostal vessels were greatly enlarged, and the fifth and sixth were ligated and sectioned posteriorly to facilitate exposure. An excellent exposure was thus obtained, in spite of the fact that several of these patients were extremely heavily muscled and of stocky build. The mediastinal pleura was then opened and the coarctation exposed.

Two general types of coarctation were encountered. In the first 3 patients the coarctation consisted of a decidedly narrowed and greatly distorted section of aorta about 1½ inches (3.75 cm.) long, beginning immediately distal to the point of origin of the left subclavian artery. This coarctated section curved sharply inward toward what appeared to be a short thick ligamentum arteriosum, but which in several patients proved to be a patent ductus arteriosus of very small caliber. The strictured area made roughly an "S" type of curve and gave the impression that this distortion was due to a contracture of the ductus arteriosus. Proximal to the coarctation the aorta was dilated at the base of the subclavian artery. This bulbous section was extremely short and the coarctated section was proportionately long, so that it was not possible to resect the coarctation and do an end to end anastomosis of the aorta without considerable tension. The left subclavian artery, however, was approximately three times its normal diameter and about equal in diameter to the aorta beyond the coarctation, that is, the descending part of the aorta. Four sets of intercostal arteries were ligated at their origin from the aorta in this region. These were of tremendous caliber, very short and friable and had to be handled with extreme care. The ligamentum arteriosum or the ductus arteriosus, if patent, was then sectioned, the coarctation mobilized and resected and the aorta closed at the base of the subclavian artery. The distal aorta was controlled by a Bradshaw[6] clamp and the transected end left open for anastomosis with the subclavian artery. The subclavian artery was then mobilized, its branches tied and divided and, after placement of a catheter around the arch of the aorta proximal to the subclavian artery for added safety, a Bradshaw clamp was applied to the subclavian artery and the artery transected as far distally as possible (fig. 2). The end of the subclavian artery was then readily swung downward for an end to end anastomosis with the descending thoracic aorta, thereby forming a perfect arch. In all adult patients the walls of both vessels are friable and thin, and it was thought that it would be poor judgment to use the usual methods of depending only on continuous everting sutures. Therefore, the anastomosis was carried out with meticulously placed interrupted everting mattress sutures around the entire circumference of the anastomosis. These sutures were of number 000 deknatel* silk and included all layers of the vessel wall; the edges were carefully everted with apposition of intima to intima. This everted suture line was then reinforced by two continuous over and over sutures of similar material, each suture covering half the circumference of the anastomosis. This made a firm nonleaking suture line after the clamp distal to the anastomosis had been removed and the clamp proximal to the anastomosis gradually released. There was a slight fall of blood pressure at this point, but no appreciable change in pulse. The mediastinal pleura and the thorax were closed, leaving the intercostal catheter for suction.

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[4] Blalock, A., and Park, E. A.: Surgical Treatment of Experimental Coarctation (Atresia) of Aorta, Ann. Surg. **119**: 445-456 (March) 1944.

[5] Clagett, O. T.: Coarctation of Aorta: Surgical Aspects, Proc. Staff Meet., Mayo Clinic **22**: 131-135 (April 2) 1947.

[6] Bradshaw, H. H.; O'Neill, J. F., and Hightower, F.: Resection of a Coarctation of the Aorta with Subclavian-Aortic Anastomosis, J. Thoracic Surg. **17**: 210-222 (April) 1948.

In the last 2 cases a second type of coarctation was encountered in which the area of coarctation was relatively short. There was decided narrowing and contracture at the level of the ligamentum arteriosus over an area of approximately 2 cm. In addition, the section of aorta between the coarctation and the subclavian was of sufficient length (1.25 cm.) to make a primary end to end anastomosis of the aorta. Three sets of intercostal vessels were ligated and the coarctation mobilized. The aortic arch distal to the left subclavian origin and a portion of the subclavian were also mobilized. Clamps were then placed across the arch of the aorta between the subclavian and the left carotid and a second clamp applied to the subclavian. A third clamp was placed on the aorta distal to the coarctation. The coarctation was resected and a careful end to end anastomosis of the aorta carried out, with the same technic as described previously, with interrupted everting mattress sutures around the entire periphery of the anastomosis, reinforced with several continuous sutures.

### COMMENT

It is interesting to observe that in none of these 5 patients was severe shock or circulatory collapse noted when the aortic clamps were removed after the anastomosis was completed. This has been reported repeatedly and deserves some comment, and a possible explanation of the cause, and some suggestions as to the management of this complication. In the subclavian aortic anastomosis of this type, a large proportion of the aortal flow is diverted which formerly passed through the subclavian system into the new aortic channel; therefore, blood pressure drop or circulatory collapse has not been observed in these cases. In the direct aortic or primary anastomosis, however, there is no diversion of this large subclavian flow, and when, in addition, a large aortic flow is opened up by removing the clamps it is obvious that this would cause a decided drop in blood pressure. It is therefore suggested that, as carried out in these cases, in the primary anastomosis of the aorta the subclavian be kept shut off while the aortic clamps are removed, and then, after the patient has adjusted to this minor drop in blood pressure, the clamp should be removed slowly from the subclavian artery. In this way it is possible to avoid having both these large channels open at the same time, with resultant decided lowering of the blood pressure. It is also interesting to note that there was a third minor drop when the lung was reexpanded and the pulmonary vascular bed increased as well. It is likewise advisable to have two infusions running at all times in this type of case, because of the hazard of sudden severe hemorrhage at any point during the procedure and, also, so that it is possible to run in large quantities of blood at the time the clamps are removed, if this proves necessary.

### SUMMARY

With surgical treatment now available, physicians should be particularly alert for cases of coarctation of the aorta, especially when evaluating hypertension in the young adult. Since this surgical procedure is safer and the results more satisfactory when performed during childhood, it is urged that all physicians and pediatricians make a comparison of the blood pressure in the upper and lower extremities as part of a routine general examination of children under their care.

In adults, the diagnosis should be made before the advanced deteriorating effects of the hypertension have produced irreversible systemic changes. If this is done, these adult patients can be safely operated on and good results obtained. The operations of choice are excision of the coarctation and end to end anastomosis of the ends of the aorta, or, if the strictured area is very long, the left subclavian artery can be utilized as described.

One of the major serious postoperative complications —hemorrhage from the suture line—can be avoided by using interrupted everting sutures around the entire circumference of the anastomosis, reinforced by continuous sutures over this everted edge. This is particularly important when dealing with the thin friable wall encountered in adult patients. Suggestions are also made to prevent pronounced circulatory collapse at the time of removal of the aortic clamps and opening up this large new vascular bed.

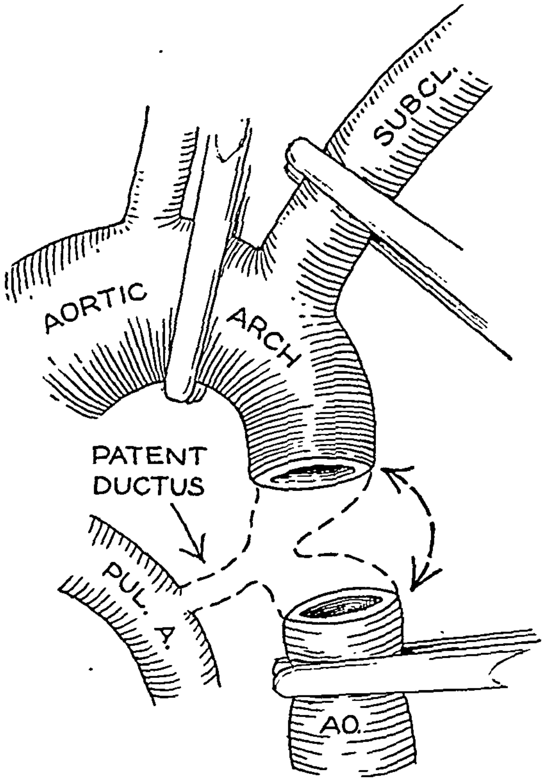

Fig. 3.—Resection of the coarctation and primary end to end anastomosis of the aorta.

# IONIZING RADIATION INJURY

## Its Diagnosis by Physical Examination and Clinical Laboratory Procedures

LIEUTENANT COMMANDER EUGENE P. CRONKITE, M.C., U.S.N.
Bethesda, Md.

Prior to the advent of the cyclotron in 1931, sources of exposure to ionizing radiation were limited largely to roentgen rays, radium and its disintegration products. The occupational injuries such as radiation burns, ulcers and carcinoma,[1] aplastic anemia,[2] leukemia[3] and radium poisoning[4] were common among the pioneer workers. In recent years these occupational hazards have been reduced but not entirely eliminated by means of education, refinements in technic and a better understanding of the biologic effects of ionizing radiation.

With the installation of cyclotrons in many universities and scientific institutions and the development of the atomic energy industry, sources of exposure to ionizing radiation are increasing with great rapidity. In addition to the increased number of sources, there are the artificial radioisotopes produced by the cyclotrons and the chain-reacting piles that are being extensively distributed for scientific study and therapy of radiosensitive diseases. A hazard of contamination of domestic and wild animal and plant life by radioactive substances will occur if any notable volume of radioactive sewage from industrial and scientific services should develop. Again, if atomic warfare should occur, disposal of radioactive fission products will be impossible and widespread contamination of urban areas and water sheds may occur.

Injuries produced by the new sources and radioactive materials are not different from the injuries produced by the old sources. The problem today is qualitatively the same, but quantitatively there are more persons working with more potent materials. Prevention is the first consideration[5] and recognition of the injury is the second consideration in any program of preventive medicine. The purpose of this report is to outline the available knowledge concerning diagnosis of ionizing radiation injury by means of physical examination, and laboratory procedures. Dosimetry, the basis of prevention, will be referred to only for illustrative purposes.

In the course of this discussion frequent reference to animal experimentation will be made, where human data are lacking or inadequate. It must be fully appreciated, as will be brought out in the course of this report, that the relationship between time of exposure and the appearance of signs and symptoms is not the same for man and smaller laboratory animals. All values for radiation dosage and laboratory procedures are the best possible estimate, based on available knowledge, and will have to be modified as more precise information becomes available.

Both acute and chronic effects may result from either internal or external ionizing radiation. The resulting clinical and laboratory picture is a function of the amount of radiation, its rate of delivery and the depth dosage.[6] This report will be divided into two parts, dealing with the single intense exposure and the repeated exposure of lesser intensity.

### DIAGNOSIS OF SINGLE INTENSE EXPOSURE TO IONIZING RADIATION

For the purpose of the present discussion a single intense exposure will be defined arbitrarily as a total body exposure of more than 25 r delivered within a few hours. An exposure of 25 r is set as the lower limit because the effects of lesser amounts are most difficult, if not impossible, to detect by clinical means.[7] Whether lesser amounts may produce deleterious late effects is not known with certainty. The effect of exposure to ionizing radiation is determined to a considerable extent by the physical characteristics of the ionizing radiation concerned, that is, the type (alpha, beta, gamma, roentgen ray or neutrons), the ability to penetrate (type and energy) and the rate at which the radiation is being delivered. With a single accidental exposure that may occur, these physical characteristics are usually known because of the nature of the experiment. Dosimetry[8] determines to a large extent the aforementioned physical characteristics. These physical characteristics are important because the clinical picture varies with the number of organ systems involved. Total body exposure to highly penetrating radiation in which all organ systems are affected produces the severest picture but with a lesser amount of radiation than larger amounts absorbed superficially.

Symptoms in man following the single intense exposure are well known from the experiences of the Japanese following the atomic bomb explosions over Hiroshima and Nagasaki.[9]

A few hours after exposure to the atomic bomb ionizing radiations, nausea and vomiting appeared. This lasted for a few hours and then subsided for a variable latent period of days. The shorter the latent period the more severe the symptoms of recurrent nausea and vomiting, mucous or bloody diarrhea, purpura, epilation and agranulocytic infections. In general the tempo at which the disease progressed in the Japanese and the Bikini animals was a direct function of the amount of radiation received.[10]

The latent period, the length of time between exposure and the development of symptoms, is of great interest. The duration of the latent period in mammals is inversely proportional to the amount of radiation received. With very large amounts of radiation, in excess of 10,000 r, the latent period becomes short and death may occur within twenty-four hours or even

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From the Naval Medical Research Institute.

The opinions or conclusions contained in this report are those of the author. They are not to be construed as necessarily reflecting the views or the endorsement of the Navy Department. Reference may be made to this report, noting authors, title, source, date, projects and report numbers.

1. Hueper, W. C.; Roentgen Rays and Radioactive Substances in Occupational Tumors and Allied Diseases, Springfield, Ill., Charles C Thomas, Publisher, 1942, pp. 244-277.

2. (*a*) Hueper.[1] (*b*) Selling, L., and Osgood, E. E.: Action of Benzol, Roentgen Rays, and Radioactive Substances, on the Blood and Blood-forming Tissues, in Downey, H.: Handbook of Hematology, New York, Paul B. Hoeber, Inc., 1938, vol. 14, p. 2963.

3. (*a*) March, H. C.: Leukemia in Radiologists, *Radiology* **43:** 275-278, 1944. (*b*) Hensaw, P. S.: Leukemia in Mice Following Exposure to X-Rays, ibid. **43:** 279-285, 1944.

4. Martland, H. S.; Conlon, P., and Knef, J. P.: Some Unrecognized Dangers in the Use and Handling of Radioactive Substances, J. A. M. A. **85:** 1769-1776 (Dec. 5) 1925.

5. Sullivan, W. K., Control of Radioactivity Hazards, Chem. & Engin. News **25:** 1862-1865 (June) 1947.

6. (*a*) Dunlap, C. E.: Effects of Radiation on the Blood and the Hemopoietic Tissues, Including the Spleen, the Thymus and the Lymph Nodes, Arch. Path. **34:** 562-608 (Sept.) 1942. (*b*) Lawrence, J. S.; Dowdy, A. H., and Valentine, W. N.: The Effects of Radiation on Hemopoiesis, MDDC-853, University of Rochester, Rochester Project, Atomic Energy Commission, Contract W-7401-eng.49, 1947.

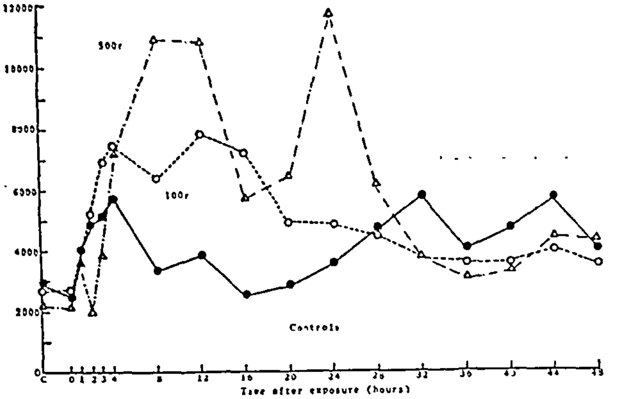
7. Jacobson, L. O.; Marks, E. K.; Simmons, E. L.; Hagen, C. W., and Zirkle, R. E.: Effects of X-Rays on Rabbits: II. The Hematological Effects of Total Body X-Irradiation in the Rabbit, MDDC 1174, Metallurgical Laboratory, University of Chicago, Atomic Energy Commission, Contract W-7401-eng.37, 1947.

8. (*a*) Sullivan.[5] (*b*) Safety Rules and Procedures Concerning Activity Hazards, MDDC-992, Manhattan District Declassified Document.

9. LeRoy, G. V.: The Medical Sequelae of the Atomic Bomb Explosion, J. A. M. A. **134:** 1143-1148 (Aug. 2) 1947. Warren S., and Draeger, R. H.: The Pattern of Injuries Produced by Atomic Bomb at Hiroshima and Nagasaki, U. S. Nav. M. Bull. **46:** 1349-1353, 1946.

10. (*a*) Footnote 9. (*b*) Tullis, J. L., and Warren, S.: Gross Autopsy Observations in the Animals Exposed at Bikini: A Preliminary Report, J. A. M. A. **134:** 1155-1158 (Aug. 2) 1947. (*c*) Cronkite, E. P., and Tullis, J. L.: *To be published.*

while the radiation is being received.[11] Each species has its characteristic latent period for the development of the full set of symptoms. In goats it appears to be three to five days; in swine it is approximately five to seven days.[10c] In man it is probably longer. It is important to remember that with short latent periods death may occur before the full syndrome develops.



The initial effect (during the first forty-eight hours) of total body roentgen irradiation on the number of heterophils in the peripheral blood. (From Jacobson and others.[7])

In the case of ionizing radiation that can penetrate only a few millimeters of tissue, signs and symptoms are limited to the surface of the body. Raper[12] has described the effects of beta radiation on the skin of rats. Robbins and co-workers[13] have described the effect of scattered cathode rays on the skin of man. In general one can state that the effects on skin resemble thermal burns and that anything from erythema and massive vesiculation to full thickness destruction of the skin may occur. Cutaneous changes are manifested by 1 to 3 stages, depending on the intensity of the radiation. For full details the reader is referred to the articles by Robbins,[13] Raper[12] and Ellinger.[14]

The early hematologic responses of man to single intense exposures to ionizing radiation are not well known. Unfortunately the early blood changes were not observed in the Japanese; hence reference will have to be made to laboratory animals in order to get an idea of what might be expected. There is no reason to expect any qualitative difference, but there may be significant differences in sensitivity and rate changes in the peripheral blood.

The hematologic responses of laboratory animals to single intense exposures to penetrating ionizing radiation are rather uniform.[15] However, after exposure to less penetrating radiation the blood changes may be fleeting, slight or absent despite severe superficial injury.

Beginning shortly after exposure to penetrating radiation, there is a prompt decrease in the total lymphocyte count which is most marked within twenty-four to seventy-two hours, depending on the amount of radiation received[7] (the figure and table 1). Recovery following a nonlethal dose begins within a few hours or days. Developing simultaneously with the progressive lymphocytopenia is moderate granulocytic leukocytosis, which appears as two peaks approximately twelve and twenty-four hours after exposure in rabbits[7] (the figure). If counts are not performed at about hourly intervals one of the peaks may be missed. After the twenty-four hour peak there is a progressive decline in the granulocyte count for the next four to six days, when there is a fleeting increase in granulocytes which is paralleled by a wave of bone marrow activity.[16] This activity is short lived, and the granulocytes again decrease. The subsequent course depends on whether the exposure is lethal or nonlethal. In nonlethal exposures a sustained though small rise in the granulocytes appears around 15 to 17 days. In lethal exposures this sustained return of granulocytes is absent.[10c] Granulocytic leukocytosis may not occur after heavy radiation.[17]

Reduction in the number of platelets and red cells and the morphologic changes in the leukocytes appear more slowly and are not so uniformly observed. In the Bikini goats and swine a pronounced shower of immature red cells appeared in the peripheral blood ten to twelve days after the atomic bomb air burst.[15g] This phenomenon has been repeatedly observed in smaller laboratory animals.[6a] Atypical and immature leukocytes and nucleated red cells appear in the peripheral blood beginning three to ten days after exposure.[18]

In concluding the section of this report on the single intense exposure to ionizing radiation it is felt that the following can tentatively be stated regarding man, until actual observations substantiate or refute these suppositions. If no decrease in the total lymphocyte count occurs in the first forty-eight hours, usually the first twenty-four hours, the exposure has certainly been less than 25 r and symptoms probably will not appear. If exposure has been between 25 and 100 r a fleeting lymphocytopenia will develop and symptoms will prob-

Table 1.—*Tabulation of the Changes in White Blood Cells of Rabbits After Exposure to Ionizing Radiation* *

| | Degree of Depression in Percentages | | Time of Maximum Depression in Hours | | Time Required Before Return to Normal Limits (Days) | |
|---|---|---|---|---|---|---|
| Dose (r) | Lymphocytes | Heterophils | Lymphocytes | Heterophils | Lymphocytes | Heterophils |
| 5 | 0 | 0 | .. | .. | .. | .. |
| 10 | 0 | 0 | .. | .. | .. | .. |
| 25 | 25 | 0 | 24 | .. | 2 | .. |
| 50 | 25 | 0 | 48 | .. | 16 | .. |
| 100 | 50 | .. | 48 | .. | 36 | .. |
| 300 | 74 | .. | 24 | .. | 50 | .. |
| 500 | 90 | 50 | 48 | 72 | 50 | 9 |
| 600 | 90 | 75 | 48 | 96 | 50 | 9 |
| 700 | 90 | 80 | 48 | 96 | .. | .. |
| 800 | 90 | 90 | 72 | 96 | 50 | 23 |

* From Jacobson and others.[7]

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[11] (*a*) Cronkite and Tullis.[10c] (*b*) Ellinger, F.: Lethal Dose Studies with X-Rays, Radiology **44:** 125-142, 1945. (*c*) Henshaw, P. S.: Experimental Roentgen Injury: III. Tissue and Cellular Changes Brought About with Single Massive Doses of Radiation, J. Nat. Cancer Inst **4**:503-512, 1944.

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[14] Ellinger, F.: The Biologic Fundamentals of Radiation Therapy: A Textbook, New York, Nordeman Publishing Company, Inc., 1941.

[15] (*a*) Jacobson and others.[7] (*b*) Henshaw.[11c] (*c*) Henshaw, P. S.: Experimental Roentgen Injury: I. Effects on the Tissues and Blood of C3H Mice Produced with Single Small Wholebody Exposures: J. Nat. Cancer Inst. **4:** 477-484, 1944; (*d*) II. Changes Produced with Intermediate-Range Doses and a Comparison of the Relative Susceptibility of Different Kinds of Animals, ibid. **4:** 485-501, 1944; (*e*) IV. Effects of Repeated Small Doses of X-Rays on Blood Picture, Tissue Morphology, and Life Span in Mice, ibid. **4:** 513-522, 1944. (*f*) Minot, G. R., and Spurling, R. G.: The Effect on the Blood of Irradiation, Especially Short Wave Length Roentgen Ray Therapy, Am. J. M. Sc. **16:** 215-240, 1924. (*g*) Cronkite, E. P.: To be published. (*h*) Furth, J., and Furth, O. B.: Neoplastic Diseases Produced by General Irradiation with X-Rays, Am. J. Cancer **28:** 54-65, 1936. (*i*) Charters, W. V., and Cronkite, E. P.: To be published.

[16] Bloom, W.: Histological Changes Following Radiation Exposures, Radiology **49:** 344-348, 1947.

[17] Henshaw.[11c] Henshaw.[15d]

[18] Dunlap.[6a] Cronkite.[15g]

ably be mild. If exposure is between 100 and 200 r the lymphocytopenia will be of greater severity and last longer. Severe symptoms of radiation illness and death will occasionally occur. If exposure is greater than 200 r the symptoms of radiation illness will be much more severe and deaths will occur more frequently. The leukocytic changes, particularly the early lymphocytopenia, will be marked.

The foregoing determination of a decrease in total lymphocytes or total leukocytes unfortunately cannot be predicated on a normal average for man or animals. The range of normal blood cell counts is great for all animals, particularly in mongrel populations like man.[19] Normal hematologic values of man will be considered in the second part of this report along with schemes for the detection of deviation from the normal ranges. Needless to say, in order to detect fleeting changes in members of the leukocyte population total white and differential blood cell counts must be performed every hour or so.

TABLE 2.—*Tabulation of the Variations of the Leukocyte Count of Human Beings with Age* *

| | Number of Subjects† | Age (in Years) | Average in 1,000's per Cmm. | Range |
|---|---|---|---|---|
| Leukocyte count | 86 | 4-7 | 10,400 | 6,000-15,000 |
| | 242 | 8-18 | 8,300 | 4,500-13,500 |
| | 269 | 19-30 | 7,400 | 4,500-11,500 |
| | | | Percentage | Percentage |
| Neutrophils, segment. | 241 | 4-14 | 38.0 | 18-58 |
| | 120 | 15-19 | 48.0 | 25-75 |
| | 236 | 20-30 | 54.0 | 33-78 |
| Neutrophils, band | 219 | 4-13 | 3.0 | 0-10 |
| | 378 | 14-30 | 0.8 | 0-5 |
| Lymphocytes | 241 | 4-14 | 48.0 | 21-71 |
| | 120 | 15-19 | .... | 22-62 |
| | 236 | 20-30 | .... | 18-65 |

* From Osgood.[19c]

† Each group included both males and females.

Diagnosis of acute radiation illness by the leukocyte count is obviously totally impractical under conditions of a catastrophe or atomic warfare. Hence the development of an easily read casualty dosimeter is imperative.

## THE DIAGNOSIS OF CUMULATIVE SMALL EXPOSURES TO IONIZING RADIATION

The diagnosis of repeated small exposures to ionizing radiation presents an entirely different problem. The changes are insidious and progressive. If excessive cumulative exposure is not detected early the changes may be irreversible and may lead to serious and fatal diseases.[20] At the present time 0.1 r per day has been set as the maximum amount of radiation that can be tolerated daily with impunity. Animal experimentation by Lorenz and co-workers [21] on mice suggests that the tolerable dose of radiation for females should be set even lower because of increased incidence of ovarian tumors.

The physical characteristics of the radiation determine to a great extent the effects that will appear from chronic exposure. The penetrating radiation may result in generalized systemic and hematologic disorders in addition to the purely superficial effects of radiation with a very low degree of penetrability.

The physical characteristics of the radiation are usually known as a specific job hazard. Relative exposure to beta, soft roentgen and gamma radiation is determined by suitable dosimeters.[8]

The superficial lesions that appear are largely limited to the skin and eyes. Cutaneous lesions are apt to appear in fluoroscopists, radiochemists and radium handlers. An increased brittleness of the finger nails with a tendency for increased longitudinal ridges to develop is common. Later there may be a loss of the integrity of the fingerprint due to patches of atrophy. Pigmentation, ulceration and carcinoma may follow the atrophy. Epilation of hairy parts may occur. Impaired sensation of the finger tips commonly accompanies these changes.[22] In the eyes, radiation cataracts may occur at an early age.[2b] However, the alteration in the blood is the best biologic index of chronic total body overexposure to ionizing radiation.

Many investigators have called attention to the great variability of the blood of man chronically exposed to ionizing radiations. Leukocytosis, lymphocytosis, leukemoid reactions, leukocytic leukemias, erythrocytosis, reticulocytosis, leukopenia, thrombopenic purpura, aplastic anemia and leukopenic leukemias have all been reported as produced by chronic exposure to radiation.[23] The blood picture may be temporarily or permanently altered by many diseases and industrial intoxications in addition to radiation. For example, infectious mononucleosis may affect the total and differential white blood count of young adults for many months after symptomatic recovery.[24] Examples of industrial poisons which affect the blood are benzene [25] and heavy metals.[1] Hence it is apparent that a "normal" range of blood counts for man must be established. This is difficult because the blood picture varies with age and to a variable degree with sex, pregnancy, meals, humidity and temperature.

Osgood [19c] gives the accompanying "normal" values for persons of different age and sex (table 2).

In naval personnel without any recent history or sign of disease [26] between the ages of 17 and 35 in the tropics and in a temperate zone, the total white cell count varied from 4,000 to 16,000. The total lymphocyte count was usually below 3,000 and rarely above 5,000. Probably 90 per cent of the adult population will have total white cell counts between 5,000 and 11,000 per cubic millimeter. The 10 per cent of adults whose counts are outside of this range may cause considerable consternation in a radiologic safety program and lead to medicolegal problems.

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19. (*a*) Charters and Cronkite.[15i] (*b*) Farr, R. S.: To be published. (*c*) Osgood, E. E., and Ashworth, C. M.: Atlas of Hematology, San Francisco, J. W. Stacy, Inc., 1937.

20. (*a*) Hueper.[1] (*b*) Selling and Osgood.[2b] (*c*) March.[3a] (*d*) Henshaw.[3b] (*e*) Martland, Conlon and Knef.[4] (*f*) Dunlap.[6a] (*g*) Furth and Furth.[15h] (*h*) Henshaw, P. S.: Further Problems in X-Ray Protection: II. Irradiation Injury and the Tolerance Dose, Radiology **44:** 569-580, 1945. (*i*) Goodfellow, D. R.: Radium and Human Leukocytes, Acta radiol. **17:** 1-50, 1936; (*j*) Leukocytic Variations in Radium Workers, Brit. J. Radiol. **8:** 669, 1935. (*k*) Kaplan, I., and Rubenfeld, S.: The Blood Picture in X-Ray and Radium Workers, Radiology **26:** 47-55, 1936. (*l*) [illegible] Ueber den Einfluss der Berufsarbeit der Radiologe [illegible] Funktion des Knochenmarkes, Folia hæmat. **36:** [illegible] rson, R.: Effects of Radiation on Radium Workers, Brit. J. Radiol. **16:** 3-5, 1943.

21. Lorenz, E.; Heston, W. E., and Eschenbrenner, A. B.: Biological Studies in the Tolerance Range, Radiology **49:** 274-285, 1947.

22. Hueper.[1] Warren, S.: Effects of Radiation on Normal Tissues: XIII. Effects on the Skin, Arch. Path. **35:** 340-347 (Feb.) 1943.

23. (*a*) Hueper.[1] (*b*) Selling and Osgood.[2b] (*c*) Footnote 3. (*d*) Martland, Conlon and Knef.[4] (*c*) Dunlap.[6a] (*f*) Furth and Furth.[15h] (*g*) Footnote 20 *i-m*. (*h*) Warren, S.: Blood Findings in Cyclotron Workers, Radiology **39:** 194-199, 1942. (*i*) Kornblum, K.; Boerner, F., and Henderson, S. G.: The Effects of Radiation on the Normal Blood Cells as Determined by the Blood Count, Am. J. Roentgenol. **39:** 225-260, 1938. (*j*) Dickie, A., and Hempelmann, L. M.: Morphologic Changes in the Lymphocytes of Persons Exposed to Ionizing Radiation, J. Lab. & Clin. Med. **32:** 1045-1059, 1947.

24. Cronkite, E. P., Infectious Mononucleosis, unpublished data.

25. (*a*) Goldwater, L. J.: Disturbances in the Blood Following Exposure to Benzol, J. Lab. & Clin. Med. **26:** 957-973, 1941, (*b*) Recovery Following Exposure to Benzine (Benzol), J. Indust. Hyg. & Toxicol. **23:** 217-231, 1941.

26. Cronkite, E. P.: *Blood Counts of Naval Personnel*, unpublished data.

Goldwater[25a] has correctly called attention to the wide range of normal lymphocyte counts in his data and those of Osgood.[10c] The data on naval personnel confirm this concept. In addition, Goldwater called attention to the necessity of having comparable parallel control studies on subjects that are not subjected to any known toxic agents.

How are the blood changes of prolonged or repeated exposure to radiation determined? It is apparent that the average count is not dependable for the general population or specific age groups; hence base line complete blood counts must be performed on all persons before exposure takes place. Subsequent counts should be performed at not less than monthly intervals. Notations on the occurrence of colds and infections must parallel the blood records, for without these base line records and a knowledge of each person's response to infections an evaluation of leukocyte changes is more difficult.

A partial review of the literature[27] confirms the opinion that if any of the following alterations are noted in a person whose usual blood values are known and who has been exposed to ionizing radiation it is presumptive evidence of excessive exposure until proved otherwise: (*a*) a persistent depression of the total leukocyte count below 4,000 per cubic millimeter; (*b*) a persistent elevation of the total leukocyte count above 15,000 per cubic millimeter with absolute lymphocytosis; (*c*) relative lymphocytosis with a low total count (4,000 to 6,000 per cubic millimeter) that returns to base line range following removal from exposure; (*d*) an increased mean corpuscular volume (MCV), a shift in the Price-Jones curve to the right, an increase in the mean corpuscular diameter (MCD); (*e*) a reticulocyte count over 2 per cent; (*f*) erythrocytosis: (1) red blood count over 5,800,000 per cubic millimeter; (2) hemoglobin over 18.0 Gm. per hundred cubic centimeters of blood.

Many other phenomena have been suggested as hematologic evidences of excessive exposure. Changes in blood coagulation, prothrombin time, platelets[27i] and morphologic changes in leukocytes[26] have been suggested. It is exceedingly difficult to evaluate the importance and the diagnostic value of these changes. A more recent observation on excessive exposure has been the description of refractile neutral red bodies in the lymphocytes.[23j] These refractile bodies are stained with neutral red in a supravital preparation, and the authors believe that increased numbers of the bodies are specific evidence of exposure to radiation or industrial poisons. The procedure necessitates a flawless supravital technic which is not widely available; hence the technic may not be generally useful. Limited personal experience with swine and goats suggests that these bodies appear irregularly in lymphocytes as the lymphocytes age in the supravital preparations; hence a rigid time control might be necessary.

The foregoing criteria depend on abnormalities in the enumeration or morphology of blood cells which arise from either depressed hemopoiesis, an increased lability of the hemopoietic organs or abnormal maturation. The establishment of the presence of these criteria must of necessity be done without adequate controls, which would not be permitted in the average biologic experiment. Hence it is much better to have some type of human control. This can be attained by establishing a comparable control group which are not subjected to any known toxic agent and performing parallel studies on this group. Average values for exposed and control groups should be studied statistically to see whether there are significant differences between the means of the two groups. In a comparable fashion the preexposure counts of the exposed group can be used as the control. If the average leukocyte count of the group for a given exposure period is significantly less than the group average leukocyte count of the preexposure period one can state with considerable certainty that excessive exposure to ionizing radiation or other toxic agent has occurred.

The following procedures will aid in determining the cause of any abnormal blood findings in a person suspected of having been excessively exposed: 1. Remove the suspect from all possible exposure to ionizing radiation. 2. Do differential counts of radiation on excreta, nasal swabs and expired air in order to estimate the type and degree of internal exposure to radioactive isotopes. 3. Study the blood at weekly intervals and compare with the preexposure base line leukocyte counts and search for an increase in the number of highly refractile, neutral red bodies in the lymphocytes. 4. Endeavor to eliminate other factors such as infectious lymphocytosis, infectious mononucleosis, virus diseases, benzene poisoning and heavy metal poisoning.

## SUMMARY AND CONCLUSIONS

The diagnosis of a single excessive exposure to ionizing radiation by blood examination is not difficult. If serious exposure has occurred, prompt, marked lymphocytopenia results and is followed by a characteristic sequence of events in the other members of the leukocyte population.

The diagnosis of repeated exposures to small amounts of ionizing radiation in a person is much more difficult and uncertain. It requires, in addition to blood studies, differential counts of radiation in urine, feces and nasal secretions and, lastly, the elimination of other industrial hazards.

The determination of repeated exposure to small amounts of ionizing radiation in groups of personnel by the statistical comparison with a control group or by statistical comparison of the average leukocyte count before and after exposure is a reasonably accurate diagnostic procedure.

The main bulwark of protection from ionizing radiation must remain physical control of radiation intensities by established monitoring procedures and prevention of contamination of personnel by radioactive materials. This is essential, because most of the signs and symptoms appear relatively late after the radiation injury has been sustained.

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27. (*a*) Hueper.[3] (*b*) Selling and Osgood.[2b] (*c*) Martland, Conlon and Knef.[4] (*d*) Dunlap.[6a] (*e*) Ellinger.[14] (*f*) Minot and Spurling.[15f] (*g*) Footnote 20 *h-m*. (*h*) Footnote 23 *h-j*. (*i*) Kaufman, J., and Pierce, C. B.: Coagulogram as Critical Indicator of Irradiation Effect: Preliminary Report Based upon Seven Year Survey of Personnel of Department of Radiology, Royal Victoria Hospital, Am. J. Roentgenol. 55:464-472, 1946.

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**Penicillin and Bacterial Endocarditis.**—Loewe deserves great credit for having demonstrated the value of large doses of penicillin in this disease after the Penicillin Committee had officially declared it to be of no value. Following his reports of cures after using quantities of penicillin far larger than had previously been tried, success was achieved almost uniformly, and today it is possible to state that the great majority of patients with this infection can be cured if sufficient amounts of penicillin are administered.—H. M. Marvin, M.D., Recent Advances in the Field of Cardiovascular Disease, *Bulletin of the New York Academy of Medicine,* November 1948.

## Special Article

# HEALTH OF THE NAVAJO-HOPI INDIANS

### General Report of the American Medical Association Team

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NOTE.—*The following special report on medical conditions among the Navajo-Hopi Indians was made by a group of physicians who were sent by the Department of the Interior as representatives of the American Medical Association. The arrangements were made by a committee of the American Medical Association, which is advisory to the Honorable J. A. Krug, Secretary of the Interior. The team comprised Dr. Samuel Ayres Jr., Los Angeles; Dr. A. A. Thurlow, Santa Rosa, Calif.; Dr. Harold E. Crowe, Los Angeles; Dr. Louis C. Ruschin, Oakland, Calif., and Dr. Lewis J. Moorman, Oklahoma City, Chairman. This project was approved by the House of Delegates of the American Medical Association.*—ED.

> I come to show you sweet Caesar's wounds; poor, poor dumb mouths, and bid them speak for me.—Mark Anthony.

## HISTORICAL BACKGROUND[1]

In 1868 at Fort Sumner, the United States, entering into a treaty with the Navajo Indians, exacted submission with definite promises from the Navajos based on government performances made obligatory in terms of the treaty.

The Navajos promised to remain on a reservation and to compel their children to go to school. The United States agreed to provide a teacher and a schoolhouse for every 30 children between the ages of 6 and 16 "who can be induced or compelled to go to school." Coincidentally with education the necessity of economic rehabilitation was recognized by the government. Apparently nothing was said about medical care, without which neither of these treaty objectives can ever be fully realized. When mutual promises were consummated and signatures affixed, the government planted the Navajos on the present reservation without reckoning with the exigencies of the forbidding terrain. The dependence on their herds and the sparsity of herbage inevitably made nomads of the Navajos and kept them on the move, threading ancient arroyos, wading sand dunes, scaling bluffs and unobtrusively blending with sage and sheep on lonely mesas.

On 18,000,000 acres of the world's proving ground for erosion, the Navajos are still tucked away from civilization with two and a half square miles for each hogan. Many of them are isolated by the absence of roads and periodically cut off by sand blows, flash floods, snow storms and mud holes and often by the mere penalty of dire remoteness. Ultimately this remoteness caused the government to realize that the Navajo child must be located and transported to a schoolhouse or the schoolhouse brought to him before he can be educated. The treaty still stands. The Navajo people are now willing to send 24,000 children to school, but the government, in approximately 80 years, has provided schools for only 8,000 children, and after all this time only 20 per cent of the Navajos speak English. Economic rehabilitation has suffered the same fate. Because of a tardy consciousness of medical needs, the Indians' health has fared no better than education and economic competency. In fact, the incidence of some preventable diseases, such as tuberculosis and venereal diseases, is increasing. Vaccination against smallpox and typhoid has proved a great boon. This is not intended as an indictment of the administration of Indian affairs, but a brief enumeration of some of the past and present difficulties, including the almost insurmountable physical handicaps. In spite of all these obstacles the Navajo flocks multiplied, and in the face of a high infant mortality, carrying out the ancient law "the survival of the fittest," his people have increased from 8,000 to 64,000 in less than two generations. Through curtailing the seeding of the native grasses through increase in his flocks, he was impressed with the necessity of animal procreation and made the most of it among his flocks and in the hogan.

His unusual fecundity, possible based on his heterogeneous origin, "hybrid vigor," influences of the desert, his pertinacity, his poise and his hard-earned psychologic self sufficiency, indicates that he may make a valuable contribution to the white man's culture and slow his frenzied mechanistic marathon to a more reasonable pace.

Apparently the first recorded appropriation of funds for medical care of the Indians was on a California reservation in 1856. In 1857 a hospital was established in Northern California and a physician employed. With this exception, especially in the Southwest area, physicians, when employed, were charged with the care of Indian agents and their families and employees. But even this service was not provided before the 1870's. Three or four physicians were appointed as Indian agents in the Southwest, and they must have mixed medical care with administrative duties. In 1873 a medical and educational division was established in the Indian bureau. This, however, was abolished in 1877, in spite of great demands for medical service. Even under this provision only about one half of the agencies had been provided with physicians. Certainly this was true in the Southwest. For a long time the Navajos had only one doctor to serve 15,000 to 20,000 persons.

By 1878 the Commissioner of Indian Affairs decided that persons employed as physicians on Indian reservations should be "graduates of some medical college and have the necessary diplomas." He had the good sense to add that because of the character of the so-called physicians serving the Indians they had lost "faith in the superiority of the white man's medicine and returned to their former methods of curing the sick."

There was a gradual awakening of the Government with reference to medical care for the Indians in the first and second decades of the twentieth century. But two world wars have made it difficult to secure the services of good physicians and have decimated the supply of nurses. In spite of the best intentions and much good work on the part of many conscientious administrators, the results are unsatisfactory. More than any other people in the United States today the Navajos need patient sympathetic understanding of both body and mind to win them from the machinations of the medicine man, whose three to nine day "sings" and "dances" are not limited by hourly schedules and do not click with the clock. It will require genuine patience and devotion to meet the medicine man's intensive psychotherapeutic appeal, especially until general education brings more light.

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. This report was made in collaboration with other members of the team.

[1] The essential facts in this historical sketch are gleaned from Dale, E. E.: Indians of the Southwest: A Century of Federal Relations, chaps. 13-15, to be published.

## A BRIEF SUMMARY OF THE TEAM'S OBSERVATIONS WITH RECOMMENDATIONS

> In our Century science is the soul of the prosperity of nations and the living source of all progress. Undoubtedly the tiring discussions of politics seem to be our guide—empty appearances! What really leads us forward is a few scientific discoveries and their application.—Pasteur.

This statement is based on individual studies and a careful perusal of the reports presented by the other members of the team.

On the whole it may be said that all the members of the team are in accord on all the observations, questions, problems and recommendations in this report.

The diseases afflicting the Navajo-Hopi Indians with few exceptions differ from those found in the white population only in degree, and this difference is due to environmental conditions, want of education and adequate medical care rather than to innate racial factors and influences.

For example, the meager statistical data regarding tuberculosis indicate that the mortality from this disease is approximately 10 times that in the general population. Yet its course in the Indian closely parallels that in the white man. This being true, we must conclude that the difference must be due to provocative factors in the environment, including faulty nutrition, physical hardships, overcrowding in the hogan and inadequate medical care, which implies the lack of effective case finding, the failure to break contacts, imperfect methods of management and the lack of sanatorium care with all the modern phases of collapse therapy and eternal vigilance through adequate follow-up service.

The same may be said of the upsurging venereal diseases, particularly syphilis, since the last war, and the same is true of the preventable killing diarrheas crowding the hospitals with children in certain seasons. Trachoma, which might be eliminated by an intensive treatment campaign, continues to take its toll. The one time Indian service physician, Dr. Lowe, should have credit here for discovering the cure for this condition.

There are many other medical, surgical and orthopedic conditions as well as dental problems. On the reservation there are communities where congenital hip is prevalent. Here early advice might save crippling for life.

These few examples suffice to show what goes on and to justify our recommendations in behalf of a fine race of people who have contributions to make to our culture and to justify what we would designate as ultimate economy through the immediate expenditure of large sums. We must protect the well by preventing and curing disease in this hotbed of uncontrolled communicable conditions. Citing a ridiculous example for emphasis, it seems the irony of fate that in this day of DDT and other agents with which to combat infestation, the teachers must go through the disgusting discipline of delousing the pupils every time the schools open and repeatedly when children are permitted to return home. Adequate health education and field service under medical supervision should take care of this as well as many other more serious evils.

The common preventable, communicable and curable diseases and conditions are being stressed in this report because they best reveal the inadequacy of past and present medical services. Other preventable conditions which go unchecked to dog the Indian's existence are pediculosis (lice), scabies (itch) and nutritional deficiencies. We realize that the Indians are subject to the average run of the diseases which afflict other races, but it seems unnecessary to enumerate them in this abbreviated report. Enough has been said to reveal certain defects, to justify what may seem to be rather radical recommendations. While looking into the Navajo's way of life and recommending the white man's culture and mode of living, we are forced to wonder what we might gain if we were willing to learn.

They seem to do very well on a rather simple limited diet. Compared to our general population they are virtually free from cancer and diabetes and they have a very low incidence of heart and blood vessel disease (arteriosclerosis). Among our people these three conditions are on the increase and contending for first place in mortality statistical columns. Perhaps the limited diet, the slow pace and the desert poise have much to do with this interesting disease discrepancy. No doubt the ratio will change as we continue to give them syphilis, gonorrhea, "firewater," soda pop, candy bars and spearmint.

### OBSTACLES

> Great works are performed not by strength but by perseverance.—Samuel Johnson.

While the obstacles are great, they seem not to be insurmountable. On the contrary, they present a commanding challenge.

Among the natural physical handicaps which to some extent explain and excuse the failure of the Indian service in the field of medicine are: the forbidding terrain and the almost inaccessible remoteness of many of the Indian families and communities. Naturally, this implies the need of better roads with adequate means of transportation, including the possibility of emergency air ambulance service. As explained elsewhere, the Indians on the Navajo Reservation became nomads through the force of circumstances. The life of the nomad in the desert is incompatible with adequate medical supervision and control. Even the faulty nutrition due to limited food supplies is a necessary result of the unaided nomadic existence, and it is difficult of solution. The inadequate, inaccessible, unsanitary and impure water supply constitutes serious health hazards. Among other immunity procedures, typhoid vaccine has helped to obviate one of these hazards. No doubt, few persons know that often the Indians are dependent on temporary water holes for drinking water, which is sometimes thick enough because of yellow mud to make good topsoil. How slowly we learn. Aristotle told Alexander the Great, "Do not let your men drink out of stagnant pools. . . . Athenians, city born, know no better; and when you carry water on the desert marches, it should be first boiled to prevent its getting sour."

Among the innate psychologic and spiritual obstacles are the profound attachments of the Navajos to their mother earth, which in their opinion gave birth and ultimate haven to not only their gods but to them and their children as well. Of equal importance is the fact that their religion is their medicine and vice versa, making their medicine men the exponents of both. Naturally it is difficult to move them off their beloved land and even more difficult to induce the illiterate (non-English-speaking 80 per cent of the Navajos) to discard their native medicine (religion) in favor of the white man's medicine. Though we question the efficacy of the medicine man's way of employing a few herbs and singing, dancing and drumming the evil spirits away, we must admit that compared with the methods of modern medicine the constant presence of the medicine man and his untiring ceremonial devotions for days and nights have a profound psychologic influence.

We cannot pass on without mentioning the psychologic impact of administrative errors, whether inevitable or otherwise, and misunderstood administrative orders and regulations, whether obviously beneficial or based on the law of trial and error with well founded hope. Everywhere we were assailed by the evidence of disturbed psychology and lack of faith on account of the "sheep and goat reduction program." Though unqualified to pass on the merits of this program, we could not escape the unfortunate reaction and disturbed confidence because of this control measure which did work an immediate hardship on some families. The well meaning attempt to make available community day schools and the enforced nomadic movement away from such schools for better grass, leaving them empty, furnishes another example of natural difficulties and resulting unfavorable psychology. This naturally poses the question of linguistic difficulties, which are so obvious it seems unnecessary to devote more space to them. These difficulties and the crying need of economic rehabilitation only serve to emphasize the need of an intensive general educational program.

On the Hopi Reservation we found the schools well attended, one accommodating the Walpi area having the highest record of attendance in the United States, the children relatively well nourished and 80 to 85 per cent of the people speaking English and liking it. The Hopis are better housed and living in villages under better sanitary conditions than the Navajos. They live both by animal husbandry and agriculture and produce some fruits. Consequently, they are not so apt to suffer nutritional deficiencies. Perhaps they are more ready to cooperate, to follow advice, rules and regulations. This may be accounted for by such factors as the high percentage of literacy (English) and the fact that they live in villages (more accessible, etc.). The medical and public health services at, and emanating from, the hospital at Keams Canyon are relatively good. Since the Hopi Reservation, containing only 4,200 Indians, rests like an island in the Navajo Reservation, we wonder whether separate administration of its medical services under the proposed plan should not be considered an obstruction to efficiency and economy.

Among the obstacles wholly under the control of man may be mentioned certain deficiencies and defects in the field of physical facilities, health administrative offices, professional personnel, housing, hospitals, sanatoriums, health centers and equipment.

Obstacles arise through quantity, character and scientific quality of professional personnel. As stated elsewhere, the government or particularly the Office of Indian Affairs may not altogether be responsible for shortages and defects in this field. The impact of two world wars, the changes in medical and hospital practices and patient psychology throughout the United States have made it ever more difficult to secure competent physicians, nurses, public health, social service, rehabilitation, welfare and health educational workers.

Unfortunately, the supply of physicians for the Indian Service is influenced by unwarranted restriction which must have consideration. In the Oct. 16, 1948 issue of *The Journal*, this headline appeared: "The Government Needs Physicians." Time and space will not permit a full quotation. Suffice it to say that the appeal comes from the United States Civil Service Commission and that among positions to be filled are those in the Indian Service. Significantly, from our point of view, the salary range is from $4,479 to $6,235. Only those who have had professional experience can hope to start in one of the brackets above the $4,479 figure. The maximum age limit is 50 years. A long discourse on relative wages and salaries and the present high cost of living would be out of place, but those who read this report are requested to take into account the fact that a physician qualified to cope with the exceptional medical, surgical and public health difficulties presented here will have spent eight to twelve years in the most exacting and the most expensive existing educational adventure. This means that he has spent a small fortune and given up a goodly number of his productive years in order that he may make a genuine contribution in an important field of human weal. Certainly he would not work for money alone after such a grueling educational experience. But he must have a reasonable competency while he pursues his professional duties even though he works chiefly for the love of accomplishment. Nothing short of this can ever redeem the Navajo health situation. We humbly inquire, What can the Indian service expect on $4,479 a year? A job at a gasoline station before embarking on a professional education might promise more.

Before leaving this question of professional personnel, the matter of nonprofessional administrative influences causing delays, limiting initiative and occasionally leading to unwarranted control of employment, tenure of service and expenditure of medical appropriations, must have serious consideration by all who are interested in the solution of the existing medical service problems. While we admit the omission of much meaty material, we feel that the aforementioned factual data are sufficient to make a case and to warrant the following recommendations.

### RECOMMENDATIONS

> The legitimate object of government is to do for a community of people whatever they need to have done but cannot do at all or cannot do as well for themselves in their separate and individual capacities. In all that the people can do as well for themselves the government ought not to interfere.—*Lincoln.*

The team, after traveling over the Navajo-Hopi reservations working day and night for the purpose of inspecting and studying health conditions and existing health facilities and considering the unmet medical needs of the Navajo-Hopi people, came together at Winslow to round out the two weeks' survey with an all day conference. This resulted in a free discussion of observations, impressions, convictions and conclusions. All these were given careful consideration and ultimately integrated, correlated, unified and crystallized into a creed which, in our opinion, warrants the following recommendations.

In keeping with a previous discussion of the Hopi situation in relation to the encompassing Navajo Reservation and in order that the Hopi health service may be included, we recommend that the Director of Health, Office of Indian Affairs in Washington, the District Medical Officers, Staff District IV and the Chief Medical Officer at Window Rock consider the feasibility of a unified medical service for the Navajo-Hopi Reservations.

Since the Health Service cannot possibly hope for a full fruition with intelligent cooperation and a certain degree of economic competency on the part of those who are being served as long as only 20 per cent of them speak English we recommend an intensive comprehensive program in general education. Since the reports indicate that there are 24,000 children of school age with school facilities for only 8,000, the opportunity is obvious and the need imperative. Furthermore, our treaty obligation stands as an embarrassing challenge. We take space to add that the attitude of educated Navajos and their ability to acquire skills and to develop economic resources are most encouraging. More intellectual light in connection with the medical program is badly needed.

It is the unanimous opinion of the medical team that the desired evolution of what amounts to almost a medical miracle cannot be realized under the present administrative methods. As we see the situation in the light of past accomplishments and present handicaps, only complete professional autonomy can accomplish satisfactory results. The Chief Medical Officer should be free to make plans, build budgets and make and act on decisions having to do with the welfare of his charges. He should have full charge of the medical service appropriations, the employment of professional personnel and the tenure of service. He should have proportionate office space and personnel and personal housing to meet the needs of an expanding service. He should be free to project and plan hospital and clinic buildings and to recommend location, construction and equipment. We recommend professional autonomy and an entirely separate health appropriation to be controlled by and spent for the health division.

The aforementioned long term formal educational requirements for physicians would seem to make autonomy obligatory. No other department on the reservation, not excepting education, requires so much in the way of preparation. No other service carries so much responsibility. Decisions having to do with birth, health, life and death must be in the hands of the physician; only he can justly carry the responsibility. Good physicians cannot afford to serve without initiative and freedom of action.

Though the government is bound by approximately 5,000 treaty obligations and statutes, apparently it is free to provide complete professional autonomy in the administration of medical care.

This leads to a recommendation that the Indian medical service be freed from the handicaps inherent in the Civil Service regulations, including salary and age limitations.

The Navajos sent a larger percentage of their total population into military service and war work than did the white people of the United States. It is believed that those that survive the high infant mortality and escape tuberculosis should make a good showing at the induction centers. The Navajos are anxious to make good citizens; they are entitled to the best. The best physicians are not to be found in the Civil Service supply. Those who doubt these statements are requested to check this source of medical personnel. With freedom from salary restrictions, we recommend that the Chief Medical Officer should be promptly endowed with authority to build adequate administrative, hospital, clinical and field staffs. In the administrative office he should have an Assistant Chief Medical Officer, a statistician (for the first time the present Chief Medical Officer has established and filled this position). He should have other necessary office personnel to negotiate adequately the important functions of his office and to keep the Washington office thoroughly informed as to his activities and statistical results. Only through such a service can those in the central office keep a level gaze on the administrative and field operations on the reservation, and only through such knowledge can representatives in the Washington office act intelligently. We recommend an adequate statistical service in the health divisions on the Reservation and in Washington through which all morbidity, mortality and other vital statistics may be tabulated, correlated and made available for the benefit of the service and to encourage clinical research.

In order to cover adequately the immediate needs of the Navajo-Hopi Medical Services, we recommend that the Office of Indian Affairs consider the construction of a medical center, at a rail head, possibly at Gallup or Winslow, with capacity to serve as a clearing house for all diagnostic problem cases, all major medical and surgical cases requiring expert services and special skills, possibly with the exception of thoracic surgery, which might be more profitably based at the present Medical Center at Fort Defiance.

The present hospital at Fort Defiance, now known as the Medical Center, should be converted to, and utilized in, the big task of providing sanatorium and hospital beds, comprehensive and diagnostic service, expert medical and surgical treatment for tuberculosis. Those who may not understand the significance and magnitude of this problem should read the individual report on tuberculosis.

It is believed that such a plan for expansion will be necessary to meet hospital needs, especially with the development of adequate field service and case finding. While immediately expensive it will result in the saving of life and ultimately prove to be economical.

The Medical Center should serve all outlying districts through cooperation with their hospitals and coordination of their work, through field service to be developed and through a case-screening service to be practiced in the district hospitals and health centers.

In addition to Fort Defiance, there are now four hospitals serving the Navajos and one on the Hopi Reservation serving both Navajo and Hopi. Three formerly in operation are now closed, and it is recommended that they not be reopened because of location, physical conditions and the proposed new plan.

The diagnostic, medical and surgical services in the outlying hospitals can be improved, but probably never brought to a high degree of scientific efficiency. At present the most satisfactory medical services in these district hospitals are to be found at Crown Point and Keams Canyon (Hopi).

The shortcomings in these hospitals can be largely compensated by the proper development of the proposed Medical Center and also the clearing of difficult cases through the health centers, some of which might otherwise reach these hospitals.

Though there are now three or four field nurses, there are no health centers or, perhaps better termed, field units in full operation. It seems reasonable to recommend at least four such units to meet immediate needs:

1. Shiprock, with three nurses
2. Fort Wingate, with three nurses
3. Tuba City, with two nurses
4. Chinle, with two nurses

Each of these units should have a physician (Medical Officer), a dentist, nurses, a sanatarian and a clerk. The difficulty in securing personnel willing to remain in some of these remote areas is significant. Perhaps a rotating service would help solve this problem.

The social and shopping isolation and the housing and living conditions on the reservation demand careful consideration. They definitely affect salary considerations. Some of these difficulties would be overcome by the proposed location of the Medical Center. Plans for time off, transportation and recreation for those in the more remote sections must have attention before good work and satisfactory tenure of service can be expected.

The success of these plans will primarily depend on proper professional personnel. As in the Veterans Administration chief hospitals, we feel that the medical staff at the Medical Center should be of such a caliber and the hospital and the equipment of such a character as to qualify for intern service. With this in view, we also recommend a visiting consultation and teaching service through one or more university medical schools.

Without these essentials, well qualified young physicians cannot afford to accept service on the reservations and a fertile field for valuable research will remain untilled. It will be most unfortunate if the rich opportunities in medicine, surgery, nutrition and degenerative diseases and others are not made available through execution of the plans proposed by the team.

We recommend frequent clinical and pathologic staff conferences at the Medical Center, with emphasis on educational values; as far as possible such conferences should be attended by the professional personnel at the outlying hospitals and health units.

We recommend staggered leave of absence for faithful professional personnel at the discretion of the Chief Medical Officer for graduate work in accredited clinics, hospitals, laboratories and foundations.

In our opinion the following services or departments should be considered essential, the heads of which should be qualified by training and experience in their respective fields and preferably certified specialists or of comparable standing and ability.

1. Internal medicine
2. General surgery
3. Pediatrics
4. Obstetrics
5. Diseases of the chest
   (*a*) An internist with special training in diseases of the chest
   (*b*) A thoracic surgeon who will also do bronchoscopic work
6. Orthopedics (While we have no accurate statistics we were told that there are 500 crippled children on the reservation. This may have included the unusual number of congenital hip cases in certain districts)
7. Ophthalmology and otolaryngology
8. Dermatology and syphilology
9. Neuropsychiatry
10. Pathology
11. Roentgenology
12. Laboratories with necessary qualified technicians

It was thought that possibly thoracic surgery, the dermatology and syphilology and the neuropsychiatric services might be placed on a contract basis, at least temporarily.

In connection with these plans, we can visualize an affiliation with public health schools and public health nursing schools for special training in field work. No comparable opportunity is now available anywhere in the United States. Likewise, we are thinking of training schools at the Medical Center for Navajo nurses, Navajo nurse's aids and aids for health education, social service, rehabilitation and welfare workers. The transition from desert Bedouins to useful citizens can be definitely accelerated by the use of such Navajo aids.

To make the plan function satisfactorily, transportation must be developed. We recommend more and better roads, and we suggest serious consideration of strategic air strips and air ambulance service for emergency cases—this either through government-owned planes or through contract service.

We recommend full cooperation with the surrounding state health departments in all matters of public health, including a statistical exchange service in connection with birth, communicable disease, morbidity and mortality statistics.

The team had conferences with tribal council members, educated (English speaking) teachers, traders, missionaries, Navajos and medicine men. After carefully weighing the results, we seriously considered the feasibility of a tactful approach designed to gain the confidence and cooperation of as many of the medicine men as possible and the advisability of bringing them into the medical center for a better understanding of the white man's medicine. It was thought that visual comprehension of what medicine and surgery can do and simple instruction might help obviate the danger of delay caused by prolonged ceremonials when there is dire need of hospitalization. Peritonitis from ruptured appendix and moribund babies from summer diarrhea serve as outstanding examples of disaster through such delay. The educated Navajos think the medicine man is on the way out, but much harm may be done while we supinely await his passing. We found two, a medicine man and a medicine woman, in hospital beds gladly receiving the white man's medicine. We talked to another who came to the Crown Point hospital purposely for a conference with representatives from the white man's American Medical Association. He wanted better hospital services for his people and revealed that he harbored certain pet peeves because physicians previously on the hospital staff did certain things without taking time to explain why and because postmortem examinations were performed without consent and without an explanation of what was found. This latter discussion came about in response to a question as to whether the medicine man would approve of postmortem examinations with the hope of learning how to help those still living. It is our belief that the Indians want to cooperate and that we have not fully measured up to our opportunities and our obligations.

The members of the team feel that the acceleration of education, with the hope of removing linguistic difficulties, that the coming of the franchise and participation in all federal and state benefits should make personal responsibility for medical care, except for the indigent, a valuable factor in the plan for "economic rehabilitation."

Regardless of the plan adopted, we recommend that the government should gradually move away from the debasing influences of all unnecessary paternalism and, through the elevating influences of education and economic competency, strive to engender the coveted consciousness of self sufficiency. The Great White Father, George Washington, once said, "He who seeks security through surrender of liberty loses both."

### A BRIEF OF RECOMMENDATIONS

1. Unified medical and public health service for the Navajo-Hopi reservations under direction of one chief medical officer.
2. General education should be assiduously pursued until every Navajo speaks English. This is a prerequisite to the development of an adequate medical program.
3. Complete professional autonomy, giving the chief medical officer full control over the medical service.
4. Freedom from Civil Service salary provisions.
5. Salaries for physicians in keeping with training, ability and highly specialized skills.
6. The establishment of a new medical center to meet the requirements of an adequate health service for the Navajo-Hopi reservations.
7. A hospital and medical staff which can qualify for intern service and stimulate research. A consultation visiting service should be established with accredited medical schools, and all possible educational advantages should be made available to the in-service professional personnel.
8. The Office of Indian Affairs should consider the feasibility of employing the proposed medical center as a clearing house for all cases from other Indian reservations in the Southwest presenting diagnostic and therapeutic problems requiring highly developed skills and technics.
9. Schools should be established at the medical center for the training of Indian aids and interpreters to supplement the services of doctors, nurses and workers in all departments where such aids can facilitate progress in their respective fields and help bring about the gradual transition from tribal dependency to individual citizenship with its opportunities and obligations, including the privilege of paying for medical care.
10. An immediate comprehensive case-finding program in the field of tuberculosis. Provision for all cases discovered. BCG vaccination of all persons not sensitive to tuberculin. Adequate social service, health education and rehabilitation in this field.
11. The conversion of the present medical center to what might be called the tuberculosis control center or the sanatorium center. Inexpensive beds should be added as needed to give the best of management in every case discovered.
12. The Chief Medical Officer should be authorized to organize and implement adequate health field services including the establishment of field units.
13. Adequate vital statistical services should be established in the Washington Office of Indian Affairs and in the various regional offices in order that policies and practices may be intelligently conceived and implemented and research in various fields encouraged through the aid of statistical studies.
14. The Washington office and Congress should give careful consideration to the unusual opportunities for sustained and controlled research in certain important phases of medicine now posing serious questions. Among these are: 1. The surprising nutritional responses to what seems to be qualitatively and quantitatively an inadequate diet wanting in variety according to accepted standards. 2. The low incidence of degenerative cardiovascular conditions, including coronary and cerebral accidents in connection with these dietetic limitations, habitat and environmental factors. 3. The very low incidence of cancer and its possible relationship to diet. Dr. Salsbury at Ganada Mission Hospital reports only 36 cases of malignant conditions, all types, in 30,000 admissions. In the same number of white persons he should have found approximately 1,800. 4. Diabetes is apparently very rare. A study of the relationship to diet and mode of life would be interesting. Dr. Salsbury reports 5 in 25,000 cases studied. In that many white persons we would expect 75 times that number. 5. The apparent absence of and lack of susceptibility to scarlet fever poses an interesting question. 6. The unusual frequency of congenital hip in certain areas arouses scientific curiosity in this inherent biologic or hereditary phenomenon. These are only a few of the untouched possibilities awaiting the clinician and the research worker in this fallow field.
15. The individual reports prepared by the members of the team should be carefully studied by all who must assume the responsibility of planning and implementing the medical program.

## SUPPLEMENT TO THE AMERICAN MEDICAL ASSOCIATION TEAM'S REPORT

The following excerpt from Sigerist's review of Jacques Schwetz's book,[2] seems to have significant application to our study of the health situation on the Navajo-Hopi reservation. It gives a graphic picture of the development of health services in Belgium's African colony and contains so much of interest in connection with our study that it seems at least worthy of the team's consideration and may be considered helpful in the interpretation of the team's report.

In 1885 the Congo Independent State was founded by Leopold II, King of the Belgians, and was placed under his sovereignty. It was annexed to Belgium and became a colony in 1908. In the beginning medical services were completely haphazard. A few dozen doctors of all nationalities without special qualifications were hired. Their function was to look after the white people and the Negro soldiers in the centers. Then from 1908 on, after the country had become a colony, services were gradually organized and steadily improved. Sleeping *sickness gave the chief impetus, since it deprived the colony* of native labor. The Negroes attributed the disease to the coming of the white man, a suspicion that was not without justification. The white man neither brought the tsetse fly nor the *Trypanosoma gambiense* but he greatly increased the traffic between the various sections of the country, so that the ever present flies had many more opportunities to become infected and to spread the disease.

This is not the place to describe the heroic fight against sleeping sickness and malaria to which the author devotes more than half of his publication. It was a fight in the course of which the colonial government developed a system of social medical services which in many ways was more complete than that of most European countries, a system that emphasized prevention rather than cure. In the beginning the physician was completely subordinated to the colonial administrator, so that he was entirely at his mercy, but later a special medical administration was inaugurated with a physician-in-chief at the head of the services of the entire colony, physicians in charge of the 6 provinces and others directing the services of the 16 districts. Laboratories were erected in every province and numerous schools were created for the training of native auxiliary personnel, an extremely important measure. Indeed, one does not need a licensed physician to distribute quinine or to immunize people against cholera. With adequate auxiliary personnel a physician can increase the radius of his field of action many times. Dr. Schwetz also very correctly points out how fatal perfectionism is in such matters. Physicians, of course, should be as well trained as possible, and it was a great step forward when all physicians going or returning to the Congo were required to take a course at the School of Tropical Medicine in Brussels. But auxiliaries should not be half-baked doctors, and if requirements are too high there will either be not enough students or those who do qualify will not be satisfied with the status of a mere auxiliary. This experience has been confirmed in other colonies. . . .

Dr. Schwetz is very critical of red tape which cannot be eliminated but should be reduced to a minimum, of window dressing, and of administrative megalomania, a well-known colonial disease which invariably affects certain individuals who at home would be nobody and in the colonies suddenly attain the status of a sultan. Dr. Schwetz can afford to be critical because he is well aware that Belgium has done a splendid job of social medicine in the colony. Nothing could testify for it better than the changed attitude of the natives toward modern medicine. Formerly when the doctors came to a village with puncture needle and microscope looking for early stages of sleeping sickness, the population vanished into the bush or the chief declared categorically that they refused to be pricked with needles which were the cause of the disease.

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[2] Schwetz, J.: L'evolution de la medecine au Congo belge, Université Libre de Bruxelles, Institut de Sociologie Solvay, Actualités Sociales, Nouvelle Série. Bruxelles: Office de Publicieté, S. G., 1946, 132 pp., reviewed by H. E. Sigerist, Bull. Hist. Med. **22**: 358 (May-June) 1948.

Today they seek the doctor spontaneously; they have realized that the wihte man is not only a collector of taxes, and they have confidence in the physician. . . .

I often wonder whether health conditions in tropical Africa are so much better today than they were before the advent of the white man. The Negroes must have developed their immunity against malaria long ago. Sleeping sickness was limited to certain regions. There was some leprosy, to be sure, Bilharzia, worm diseases, dysentery. They probably had more food and a better diet than they have now, and their witch doctors must have had good results in a number of cases. They certainly gave more and better psychiatric services than the whole of Africa has today. Then the white man came, took land away from the natives, forced them to do wage work, taxed them, upset their cattle economy and replaced it by a money economy which is hard for them to understand, spread syphilis, alcoholism and many other diseases. The social, economic and moral balance of entire populations was destroyed, and this obviously affected the people's health adversely. And then the white man seeing that he was losing the chief wealth of his colonies, the labor power of the people, developed health services and did it sometimes very successfully as we have seen in the case of the Belgian Congo.

Detribalization, education, the modernization of agriculture and the development of some industries are unavoidable if the standard of living of the African population is to be raised; it cannot be done, however, by an exploiting minority but only by the people for the people.

# Clinical Notes, Suggestions and New Instruments

## NEPHROSIS OCCURRING DURING TRIMETHADIONE THERAPY

### Report of a Case

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In May 1948, Barnett, Simons and Wells[1] reported a case of a 16 year old patient in whom the manifestations of a nephrotic syndrome appeared while the patient was taking trimethadione ("tridione"). Certain features of the patient's course and condition seemed to differ from the clinical picture of nephrosis resulting from poisoning or occurring spontaneously from unknown causes. The nephrosis occurred during the administration of the drug, disappeared after the withdrawal of the drug, recurred when the medicine was exhibited again and again disappeared after withdrawal of the medicine. Moreover, the patient at the height of her nephrotic state showed intense proteinuria, hypoproteinemia, hypercholesterolemia and yet practically normal renal function. The authors found it probable that there was a causal relationship between the treatment with trimethadione and the appearance of the nephrosis. Nevertheless, they state that "final evaluation of the relation of tridione to the nephrotic syndrome must await further observations in this and other patients." Many of the details of the following case history closely parallel the experience reported by Barnett and his co-workers.

### REPORT OF A CASE

In 1935, at the age of 7 years, J. P., a white boy of Jewish parentage, was admitted to the New Britain General Hospital with fever and headache, and, after a brief illness diagnosed as polioencephalitis, he recovered with a residual weakness of the right side of the face. In 1939 he was again admitted to the hospital with clinical laboratory observations which led to the diagnosis of lymphocytic choreomeningitis. He recovered from this without apparent residue, but in June of 1947 he began to have seizures. These seizures were described as a feeling of being cut off from his surroundings. Without dizziness or tendency to fall or faint, he nevertheless felt as if he were walking on a pillow, or on air, and sometimes believed that he was aware of an odor which he never has identified. After three such spells had occurred the patient was examined by a consulting physician, who reported that there were abnormal electroencephalographic observations that were indicative of idiopathic epilepsy. On June 14, the patient commenced taking diphenylhydantoin sodium ("dilantin"), 1½ grains (98 mg.) three times a day, and trimethadione, 3 grains (195 mg.) three times a day. Shortly after this therapeutic regimen was introduced the patient complained of pain in the right shoulder, slight nausea and pins and needles sensation in his fingers. The treatment was discontinued entirely for several days and then instituted again. No ill effects seemed to result, although studies of his blood and urine were not made. The dosage of diphenylhydantoin sodium and trimethadione was reduced about March 1, 1948. He received 2 capsules containing 1½ grains (98 mg.) of diphenylhydantoin sodium and 2 trimethadione tablets (195 mg. each) one day and one-half that dose on the alternate day. On May 1 the patient went for a hike in the woods, and that evening he noticed puffiness of his face. On May 9 he began to have pain in his shoulders and nausea but no vomiting. During the following week he noticed a gradual increase in the size of his thighs and legs. The patient denies any recent infection of the respiratory tract, sore throat, chilling or other illness or having taken any medicines other than those listed.

On May 15 the patient came for examination because of his obvious massive body swelling. He weighed 173 pounds (79 Kg.), fully dressed, although he claimed his usual weight was 148 pounds (67 Kg.). The boy was well developed and rather pale, with puffy eyes. He had a residual weakness of the right side of his face. His pupils were equal and responded to light and in accommodation, and the retinal vessels appeared normal. His tonsils were absent, the tongue was furrowed but not abnormal in color. His pulse rate at rest was 64 and entirely regular. Blood pressure was 132 systolic and 84 diastolic. There was no evidence of basal congestion in his lungs and no scrotal edema. Examination of the abdomen did not reveal enlarged organs or areas of tenderness, but the abdominal wall felt thickened. There was decided thickening with pitting edema of his thighs and feet. His urine had a specific gravity of 1.035 and a thick cloud of albumin when boiled with acetic acid. Microscopic examination showed abundant mucus, about 1 white blood cell per low power field and a few hyaline and granular casts. His red cell count was 5,300,000 and hemoglobin 105 per cent, or 16.3 Gm. per hundred cubic centimeters. The white blood cell count was 12,800, with a differential count of 56 per cent polymorphonuclear leukocytes, 40 per cent lymphocytes and 4 per cent eosinophils. His nonprotein nitrogen was 32 mg. per hundred cubic centimeters. The blood cholesterol was 266 mg., serum albumin 2.8 Gm., globulin 1.6 Gm. and total protein 4.4 Gm. per hundred cubic centimeters. The reaction to the Kline test was negative.

All medication was withdrawn. The patient was confined to bed, with a salt-poor diet and fluid intake of 1,800 cc. per day. The following day his pulse rate was 48, but otherwise there was no change. On May 18 he had a temperature of 101 F. by mouth, nausea, mild general abdominal discomfort and extensive painful indurated erythema of the skin of both thighs. He was then admitted to the New Britain General Hospital. On admission his weight, without clothing, was 171 pounds (78 Kg.). The same diet was continued and similar fluid intake, and he was given intramuscular doses of 300,000 units of penicillin ("duracillin") daily for ten days. He became afebrile the day after admission and remained so throughout his twelve days in the hospital. The erythema disappeared in forty-eight hours and all symptoms of discomfort cleared up. A detailed record of his intake of fluids and output of urine is included in the chart.

During the first week that the patient was in the hospital results of daily urinalyses showed little change from those reported on May 15. The specific gravity of the urine remained

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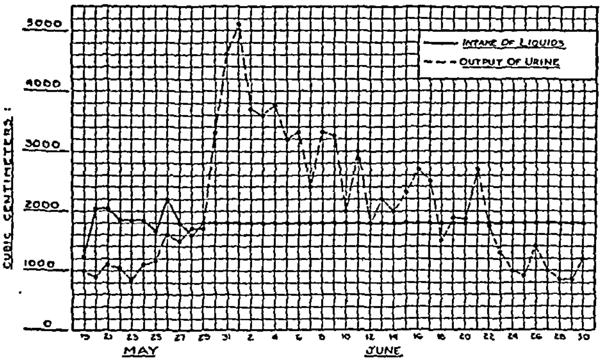
[1] Barnett, H. L.; Simons, D. J., and Wells, R. E., Jr.: Nephrotic Syndrome Occurring During Tridione Therapy, Am. J. Med. 4: 760 (May) 1948.

at or about 1.025. The quantitative test showed 15 Gm. of albumin per thousand cubic centimeters of urine. On May 27 the urine had large numbers of hyaline casts with a few granular and waxy casts and 10 to 15 pus cells per high power field. His quantitative albumin that day was 21 Gm. per liter. Red blood cells were rare or absent from all of the urine specimens. Phenolsulfonphthalein was given intravenously, and 15 per cent was obtained in the urine voided ten minutes later and 40 per cent obtained seventy minutes after administration of the dye. Blood cholesterol on May 24 was 167 mg. and plasma chlorides were 570 mg. On May 29 the serum albumin was 3.1, globulin 1.3 and total protein 4.4 Gm. On May 30, when the patient was discharged to his home, he was asymptomatic, but the appearance of the edema had not changed and he had lost only 3 pounds (1.3 Kg.). It may be noted from the chart that the output of urine per day had been approximately 1,200 cc. On May 30 the output rose abruptly to 3,320 cc.; on June 1 it reached the maximum of 5,130 cc., and on that date his undressed weight was 154 pounds (70 Kg.). On June 10 the serum albumin was 1.8 Gm., globulin 1.7 Gm. and total protein 3.5 Gm. On that day he weighed 141 pounds (64 Kg.), the lowest weight recorded, after which his weight slowly increased. The urinary output continued to exceed intake until June 19. On June 21 the serum albumin was 4.8 and globulin 0.6 Gm., total protein 5.4 Gm. Soon after the patient's diuresis had been fully established he was allowed to take salt according to taste and to choose foods without restriction.



Daily record of liquid intake and urine output (in cubic centimeters).

On June 21, seizures similar to those he had had a year previously recurred. Each seizure was estimated to last from 30 to 60 seconds. The patient stated that he felt cut off from his surroundings and felt as if he were "walking on a pillow." Three seizures occurred on June 21 and six on June 22. From June 23 on he took ½ grain (33 mg.) of "mebaral" (N-methylethylphenylmalonylurea) three times a day. On August 19 the patient reported that no seizures had recurred. Urinalyses on several occasions after July 15 were made and showed no evidence of albumin or of cells or casts. He claimed that he felt as well as he had ever felt.

### COMMENT

Nephrosis developed ten months after the beginning of treatment with trimethadione, and the patient recovered without residual symptoms three weeks after withdrawal of the medicine. The experience of this patient adds weight to the conclusions made by Barnett, Simons and Wells [1] that trimethadione apparently caused nephrosis in their patient. A rather long list of toxic reactions to this drug has been presented by Lennox [2] without mention of its effect on the body in producing the nephrotic syndrome. The usefulness of the medicine in the treatment of petit mal has been recently stressed by Gibbs.[3] No record has been found other than the report of Barnett and his co-workers of nephrosis occurring during trimethadione therapy. Fortunately in their experience, and in mine, the prognosis has been good, with complete disappearance of all evidence of renal disease. The nephrosis induced by trimethadione seems unlike that from the common chemical nephrotoxic agents and resembles the so-called lipid nephrosis except for the brief duration of trimethadione nephrosis. The mode of action of trimethadione seems to be to provoke an increased porosity of the glomerulus to proteins. In this case the patient proved to be susceptible to infection during his illness in a manner that is common in nephrosis. He showed spontaneous diuresis, and, while the evidence is incomplete, the diuresis seems to have been independent of any substantial rise in the level of blood protein. Some additional light may be thrown on the mechanism of nephrosis by means of additional studies on this unique disorder.

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## Council on Pharmacy and Chemistry

### REPORTS OF THE COUNCIL

*The Council has authorized publication of the following statements.*
Austin Smith, M.D., *Secretary.*

### ANNUAL MEETING OF THE COUNCIL ON PHARMACY AND CHEMISTRY

The Council on Pharmacy and Chemistry held its annual meeting on Nov. 12, 1948 at the headquarters of the American Medical Association in Chicago. Dr. Torald Sollmann and Dr. James P. Leake were reelected Chairman and Vice-Chairman of the Council.

Following is a brief résumé of some of the topics from the Council agenda and of the actions taken by the Council:

*ACS Serum.*—The status of this substance, including its preparation, availability and claimed usefulness, was reviewed, but it was agreed that no action seemed indicated at this time.

*"Over-the-Counter" Sale of Large Doses of Penicillin for the Prevention of Gonorrheal Infections.*—The information contained in a report by Dr. Harry Eagle and others was reviewed, as was information obtained from other sources. Consideration was also given to the general problem of the release of penicillin for "over-the-counter" sale, regardless of its intended use. It was agreed by the Council that the difficulty of controlling such sale and the use of a product such as penicillin cannot be stressed too strongly and that the safety of the general population must be considered at all times. In addition, the Council agreed that the work reported by Dr. Eagle and associates represents an interesting approach to a general health problem but that further investigation seems in order before the Council can issue a statement.

*Status of Sulfonamide Compounds.*—The status of the sulfonamide compounds was reviewed by the Council, and it was agreed that sulfanilamide and sulfaguanidine should be deleted from the next edition of New and Nonofficial Remedies. Apparently very little of these substances is now used in the therapy of human infections in the United States.

*Status of Newer Antibiotics.*—Polymyxin, "chloromycetin" and aureomycin, three antibiotics available for some time for experimental use, were discussed with a view to determining the possible role that these materials will have in chemotherapy. At least one of them, aureomycin, is commercially available. Polymyxin seems to have the property of producing temporary renal tubular dysfunction. In addition, it is a difficult antibiotic to extract and it seems unlikely that it will be on the market in the near future. It apparently is a mixture of four or five polypeptides, each of which has some antibacterial effect on certain gram-negative organisms. "Chloromycetin" is effective against rickettsial infections and certain experimental infections produced by gram-negative bacteria. It offers promise of having specific effectiveness in the treatment of typhoid. Aureomycin has been used in the treatment of spotted fever, murine typhus, Q-fever, Brill's disease, staphylococcic infections, certain bacillary urinary infections, group D hemolytic streptococci and streptococcus faecalis infections, acute undulant fever, primary atypical pneumonia and lymphoagranuloma inguinale. The Council's consideration of these antibiotics represented merely a review of their status, and no recommendations were forthcoming.

*Ultraviolet Irradiation of Plasma and Serum.*—The Council has accepted for inclusion in New and Nonofficial Remedies a rabies vaccine that has been subjected to ultraviolet irradiation. However, it has held in abeyance submitted brands of irradiated plasma. On the basis of data presented at the annual meeting it was agreed that the evidence seems to indicate that ultraviolet irradiation will kill the virus responsible for serum jaundice and that plasma and serum submitted to such irradiation can be included in New and Nonofficial Remedies, provided the other requirements of the Council are met.

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[2] Lennox, W. G.: Tridione in the Treatment of Epilepsy, J. A. M. A. **134**: 138 (May 10) 1947.

[3] Gibbs, F. A.: New Drugs of Value in the Treatment of Epilepsy, Ann. Int. Med. **27**: 548 (Oct.) 1947.

*Antihistaminic Preparations.*—The status of antihistaminic preparations was reviewed and it seemed apparent that the number of preparations on the market has served to provide confusion, and before others are introduced they should show certain advantages. The Council then agreed that it would be wise to consider criteria or qualifications for acceptance of any new antihistaminic preparations and suggested for consideration criteria such as the following: (1) that the drug have a greatly increased potency over those now available so that it would be possible to give relief to certain allergic manifestations not relievable now; (2) that the drug be much less toxic than any now available, not in terms of 10 per cent less toxicity but many times this figure; (3) that the drug be more active for a much greater duration, not just for three or four hours but several times this, possibly up to twenty-four hours; (4) that the drug have other than histaminic action, such as sympathomimetic action, or some other action that in some way interferes with the allergic mechanism. These criteria are not intended to serve as means of limiting Council acceptance but as objectives for researchers and manufacturers when they explore this field.

*Estrogenic Preparations.*—One of the problems that face the Council and the medical profession is concerned with the duplication of preparations. The Council authorized the preparation of a report pointing out the undesirable features of unnecessary duplication, citing the antihistaminic drugs and estrogenic preparations as illustrations. This report appears elsewhere in the Council column and is entitled "Too Many Drugs."

*Status of Chlorguanide Hydrochloride Dosages.*—Recent developments indicate a need for a change in the dosage schedules for this preparation. For example, it now seems evident that 0.3 Gm. of chlorguanide hydrochloride is often essential for the suppression of malaria and for the prevention or suppression of vivax malaria. Manufacturers who have submitted brands of this preparation to the Council will be asked to take this into consideration when their literature is revised.

*Typhoid and Paratyphoid Vaccine Combined.*—At its last meeting (Nov. 14-15, 1947) the Council voted to omit typhoid and paratyphoid vaccines combined from New and Nonofficial Remedies. Since that time some correspondence has ensued so that the Council gave reconsideration to the status of such mixtures. It concluded, however, that there was not sufficient evidence to justify a change in the Council's stand. Nevertheless, the Council authorized the preparation of an article for publication. It is anticipated that one will be forthcoming in the near future.

*Emulsified Mineral Oil.*—It appears possible that highly emulsified mineral oil may achieve a more intimate relation with the intestinal tract tissues than the unmodified mineral oil. However, further evidence, especially in human beings, is needed to explore fully this possibility and, until such evidence is forthcoming, the Council will continue with its acceptance of mineral oil preparations that are manufactured by normal pharmaceutical practice.

*Reacceptance of Products.*—The Council gave consideration to a technic whereby reacceptance procedures can be expedited.

*Committee on Toxicology.*—For some time the Council has been interested in toxicologic problems and has had an exploratory committee to prepare recommendations for meeting some of the problems inherent in this field. The Council voted to continue the existence of such a committee and of a subcommittee on pesticides to explore the whole problem and to determine the Council's ultimate consideration of pesticides and related substances.

*Controls in the Manufacture of Drug Products.*—The Council gave consideration to problems related to the control of the manufacture of drug products and to the standards set forth in the official compendia. No formal action was taken by the Council.

*Scope of New and Nonofficial Remedies.*—The scope of N. N. R. was considered and attention given to expediting consideration of items coming within the purview of the Council.

*Coined Names.*—The status of trademarked names and of generic names in relation to Council acceptance was reviewed. The Council reaffirmed the action previously taken for the consideration of names concerning which there may be a difference of opinion. This action provides a means whereby the Council may obtain comments from the officers of the American Medical Association Sections when there is a question of what constitutes a misleading or therapeutically suggestive name.

*Inert Glandular Preparations.*—The Council gave consideration to the marketing of inert glandular preparations and their exclusion from the market by legal procedures. No formal action was taken.

*Excessive Charges for Drugs.*—The Council gave consideration to the claims that excessive charges for drugs may exist in some quarters and voted that an article on this subject be prepared. This article appears elsewhere in the Council column under the title "Exorbitant Charges for Drugs."

*International Nomenclature.*—The advantage of using the same names for chemical substances and drugs throughout the world was discussed by the Council and it was agreed that the Council would cooperate in any way that it could to encourage such recognition of uniform nomenclature.

## TOO MANY DRUGS?

A fundamental requirement to successful treatment is that the physician have the clearest possible understanding of the remedial agents that he prescribes. This is difficult at best, and is rendered increasingly difficult with multiplication of agents that are nearly but not quite equivalent. Each may show minor differences, which may or may not be practically important, but which are difficult to learn if he spreads his experience too widely and therefore too thinly, as he is urged to do when pharmaceutical firms introduce and promote many actual or near duplicates, with the chief purpose of profiting in a presumably lucrative field, rather than with any real consideration for the welfare of the public or of the interest of medical science and practice. A satisfactory advance has been achieved in the elimination of superfluous drugs from the Pharmacopeia, and the National Formulary has made praiseworthy strides in this direction, but the catalogs of drug houses continue to be overcrowded. The processes of natural selection and the operation of economics tend toward the final survival of the fittest and the eventual elimination of the less fit, but they operate slowly. In the meantime, as new fields open, there is the gold rush to stake out claims and make a killing while the going is still good. But it is particularly in these new and relatively unexplored fields where the harm of unnecessary duplication is greatest, where it interferes most seriously with the acquisition of the precise information that is essential to the proper evaluation of the scope and of the dangers of new medications. Two examples that come to mind are the estrogenic preparations and the "anti-histaminic" drugs. In both cases, synthetic chemistry is able to produce practically numberless agents. Both fields are already crowded and overcrowded, but new agents are still being introduced at an alarming rate which makes it practically impossible to acquire the experience that is necessary to determine what advantages, if any, they possess over the older similar agents. There is another side to the argument, however, for few if any therapeutic agents are ideal. Improvements, increased efficiency, fewer side actions and lower toxicity should be sought for. Skilful experimentation in this direction should be encouraged, not obstructed, but this thorough experimentation should *precede* the introduction into medical practice. It were better, much better, for medical practice and probably for financial dividends, if modifications which do not offer substantial advantages were shunted into the discard before they see publicity and add to the confusion of practitioners. As an example, it has been suggested to the Council that it decline to accept further antihistaminic drugs unless they offer at least one of the following advantages over the agents already accepted: (1) that the drug have a greatly increased potency over those now available so that it would be possible to give relief to certain allergic manifestations not relievable now; (2) that the drug be much less toxic than any now available and not 10 or 20 per cent less toxic; (3) that the drug be more active for a much greater duration, not just three or four hours, but for twenty-four hours; (4) that the drug have other than histaminic actions, such as sympathomimetic action, or some other action that in some way interferes with the allergic mechanism.

The Council agrees fully that some such criteria should be applied to all fields that are becoming overcrowded, but the Council believes that it would be much better if this is done by voluntary action of the individual manufacturers, rather than by the fiat of any central agency. The latter could easily tend to stifle legitimate and useful competition by cooperative manufacturers, while the less conscientious would go ahead and modify or pirate without Council acceptance. The Council therefore refers the problem to the good sense of the manufacturers who value the respect and good will of the medical profession.

## EXORBITANT CHARGES FOR DRUGS

One of the tritest jokes of the "gay nineties" was the high profit of the druggist: Why, he would charge as much as twenty-five cents for a prescription for an eyewater which cost him perhaps a fraction of a cent! It was always good for a laugh, generally good natured, for the sum total did not bankrupt the purchaser, and the public knew that their good neighbor the druggist was not waxing rich from the sale of prescriptions, but was happy if he made a modest living. The public, however, did not realize that the price of the prescription was not merely for the ingredients, but also for the time, skill and responsibility of the compounder, and a certain amount of "standby" pay. They would not expect a lawyer's fee to be based solely on the amount of paper that he used, but with the druggist it was different. Perhaps pharmacists were somewhat to blame, as they did not sufficiently emphasize the ingredient of professional service; but one does not get very far in attempting a serious argument on a good-natured joke. With the rising cost of living, the invisible service charge, too, has risen, but for most of the older drugs the total is still within reason, and the public is generally willing to pay the price, as it realizes, at least subconsciously, that the laborer is worthy of his hire, even though he is a member of a profession, and, after all, a dollar or two can generally be afforded without breaking the bank. Of late, however, a new item has entered into the scene, the high cost of some of the newer drugs, especially the antibiotics. The manufacturer has generally incurred heavy expenses in developing and manufacturing these drugs, and he must pass on these costs to the pharmacist or hospital, or go out of business. The pharmacist in turn must pass it on to the consumer, and the hospital must in some way find the funds for those who are unable to pay in full. These costs may now reach very substantial amounts and be a serious hardship. This is, indeed, unfortunate, but so it is, and one cannot reasonably object to a reasonable price including a reasonable service charge; but the fact that the reasonable charges may be necessarily so high as to be a serious burden when added to the other costs of sickness makes it imperative that the price be kept as low as possible. The Council has been informed, however, that this is not always the case; that some pharmacists have made this a pretext for raising the price of less expensive drugs, pretending that these were also "expensive," and that some hospitals have been known to make exorbitant charges for drugs to patients able to pay, as a hidden means of financing the deficits with which most hospitals are all too familiar, and, it must be regretfully, admitted, some physicians are guilty of this practice. The Council would urge those who are guilty of such practices, perhaps thoughtlessly, to ask themselves these two questions:

Are not exorbitant profits a hold-up of the unfortunate and generally helpless victim? Is it not a fraud to suggest that high prices are due to the cost of the drug when this is not wholely true?

Those who are not guilty of such extortion may well consider that the bad practices of a few are apt to be blamed on all.

## NEW AND NONOFFICIAL REMEDIES

*The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.*

AUSTIN SMITH, M.D., *Secretary.*

**CONTRACEPTIVE JELLIES AND CREAMS** (See New and Nonofficial Remedies 1947, p. 271).

The following additional dosage forms have been accepted:

HOLLAND-RANTOS CO., INC., NEW YORK

**Koromex Cream:** 135 Gm. (refill tube).

**Koromex Jelly:** 142 Gm. (refill tube).

U. S. Trademark 213,756.

**METHADONE HYDROCHLORIDE** (See THE JOURNAL, Aug. 14, 1948, p. 1382).

*The following dosage form has been accepted:*

S. E. MASSENGILL CO., BRISTOL, TENN.

**Solution Methadone Hydrochloride:** 10 mg. per cc., 1 cc. ampuls.

**Tablets Methadone Hydrochloride:** 2.5 mg., 5 mg. and 7.5 mg.

# Council on Physical Medicine

## REPORTS OF THE COUNCIL

*The Council on Physical Medicine has authorized publication of the following reports.* HOWARD A. CARTER, *Secretary.*

## MICROTONE AUDIOMATIC, MODEL T-5, HEARING AID ACCEPTABLE

Manufacturer: The Microtone Company, 4602 Nicollet Avenue, Minneapolis 9.

The Microtone Audiomatic, Model T-5, Hearing Aid is a battery-contained type of hearing aid. A rectangular case of white plastic material contains microphone, amplifier and batteries.

Microtone Audiomatic T-5 Hearing Aid.

The outside dimensions of the case, excluding clip, are 123 by 61 by 25 mm. (4¾ by 2½ by 1 inch). The weight, including batteries, is just under 230 Gm. (9 ounces). The A battery and the 30 volt B battery are both of the zinc-carbon type. The A battery drain is 60 milliamperes and the B battery drain is approximately 0.55 milliampere.

The Council verified the manufacturer's claims regarding the frequency characteristics of the instrument as performed in the firm's laboratory. The following are results of a performance test on 2 subjects who were habitual users of hearing aids:

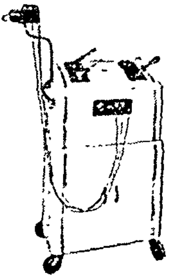
| Subject | Acoustic Gain Greater than | Articulation Scores<br>Model T-5 | <br>Reference |
|---|---|---|---|
| A | 44 db. | 86% | 80% |
| B | 50 db. | 87% | 77% |

The Council on Physical Medicine voted to include the Microtone Audiomatic, Model T-5, Hearing Aid in its list of accepted devices.

## LIEBEL-FLARSHEIM MODEL AG BOVIE ELECTROSURGICAL UNIT ACCEPTABLE

Manufacturer: The Liebel-Flarsheim Company, 303 West Third Street, Cincinnati 2.

The Liebel-Flarsheim Model "AG" Bovie Electrosurgical Unit is designed to succeed the Improved Davis-Bovie Electrosurgical Unit manufactured by the same firm and on the accepted list. According to the manufacturer, the new unit retains all the essential principles of its predecessor models and in addition incorporates a tube-cutting current and the use of automatic instead of manual adjustment of the spark gaps. The term "tube-cutting" means tissue severance by the use of high frequency oscillations produced by vacuum tubes. This current is used when it is desirable to have no hemostatic effect with the cut. When hemostatic effect is necessary, the spark-gap cutting currents are used.



Liebel-Flarsheim Model AG Bovie Electrosurgical Unit.

The Council obtained evidence of satisfactory performance by this apparatus in more than 100 surgical cases. The operative procedures represented a fairly wide field of general and abdominal surgery and included some underwater cutting. It was used for coagulation, desiccation and electrocision.

The Council on Physical Medicine voted to include the Liebel Flarsheim AG Bovie Electrosurgical Unit in its list of accepted devices.

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SATURDAY, FEBRUARY 5, 1949

## HODGKIN'S DISEASE

An increased number of cases of Hodgkin's disease has apparently been reported during the last twenty years.[1] The increase is considered by some investigators to be due to a wider use of biopsies as a diagnostic measure. However, the Metropolitan Life Insurance Company figures which compare statistics for 1921 and 1936 appear to support the opinion that the disease is increasing, while the statistics of the New York City Department of Health appear to deny it. The incidence of Hodgkin's disease in the United States was recently reported[2] to vary from 0.5 to 2.5 per 100,000 population.

Malpighi wrote the first description of Hodgkin's disease in 1661. Thomas Hodgkin recognized the syndrome as a clinical entity in 1832 and described 7 cases with lymph node and splenic enlargement, cachexia and a fatal termination. Langhans noted giant cells in the lesions in 1872. In 1892, Goldman pointed out that eosinophils were frequently found in the lesions. Dorothy Reed's contribution[3] to the histopathology of Hodgkin's disease appeared in 1902. The histopathologic description is now unequivocal in the majority of cases, but the controversy concerning the origin, nature and etiology continues.

Of many names that have been applied to Hodgkin's disease, the following persist: lymphadenoma, malignant lymphoma, lymphogranuloma, lymphogranulomatosis, malignant granuloma and adenia. Males are affected almost twice as often as females. Any organ containing collections of lymphoid tissue is susceptible to attack. The lymph nodes of the neck are involved first in a majority of cases. They are frequently enlarged in chains, with the nodes varying in size from 2 to 12 cm. However, the lungs and the skin may be the primary site; indeed, almost every organ in the body has been reported to contain typical lesions.

The earliest change detectable in the lymphoid tissue is a proliferation of reticulum cells, increased numbers of mitoses and dilatation of blood vessels and lymph sinuses. As the process develops, the proliferating reticulum cells and lymphocytes fill the lymph and reticular spaces, obliterating any distinction between follicles and sinuses. During this proliferative period, giant cells, plasma cells and eosinophils may appear in large numbers. The established lesions form a mass of lymphocytes, endothelial cells, Langhan's giant cells, Sternberg-Reed cells, lymphoblasts, myelocytes and megakaryocytes. Skin lesions may present special characteristics. Bersack reported a case with terminal miliary spread to the skin in which a biopsy showed a normal epidermis with minimal reaction about the small blood vessels. The early changes observed consisted of slight endothelial and fibroblastic proliferation with a moderate number of lymphocytes throughout the corium. Biopsy later revealed Hodgkin's disease. Rae described a case with pruritus in which the connective tissue of the skin was infiltrated by lymphocytes. Another significant observation is a depletion of lymphoid elements in the spleen and, to some extent, in other organs not involved by a specific lesion. Bersack, who studied the lymph nodes in 225 cases, concluded that in the majority of cases there is sufficient uniformity in the several sections of one lymph node or in simultaneous biopsies from different sites to warrant the characterization of each case on the basis of histology.

The presenting symptom in about 79 per cent of the cases is painless progressive enlargement of a lymph node or nodes; other symptoms are loss of weight and appetite, weakness, fever, pruritus, cough and dyspnea. A majority of cases progress through three stages: (1) a latent period during which the nodes enlarge without symptoms; (2) a period of progression and generalization during which symptoms of varying severity appear, and (3) a period of cachexia which precedes death. One of the distinguishing qualities of Hodgkin's disease is the changing course of events week by week, month by month. No patient experiences all the symptoms noted, and spontaneous remissions and exacerbations occur in the early stages. Fever may begin and end without obvious relation to the enlarged glands, which may increase in size during the fever episode. Not infrequently in patients without fever, pain is a frequent complaint and back pain a common symptom. The most frequent neurologic symptom complex is paraplegia.

A complete history, physical examination, blood and roentgenologic studies and observation of the clinical course help in making a presumptive diagnosis. The differential diagnostic problem involves giant follicular lymphoblastoma, myeloid and lymphatic leukemia, Cohnheim's subleukemic lymphatic leukemia, myeloblastic sarcoma, lymphosarcoma, reticulum cell sarcoma, metastatic carcinoma, Boeck's sarcoid, nonspecific inflammatory adenopathy, certain fungous diseases, lymphogranuloma inguinale, typhoid, brucellosis, tuberculosis, syphilis and infectious mononucleosis. The final criterion rests with the histopathologic appearance of diseased tissue.

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[1] Hoster, H. A., and Dratman, M. B.: Hodgkin's Disease 1832-1947, Cancer Research **8:** 1 (Jan.); 49 (Feb.) 1948.

[2] Hoster, H. A.: Studies in Hodgkin's Syndrome; A Distribution Study of Hodgkin's Disease in the United States, Ohio J. Sc. **44:** 245-250, 1944.

[3] Reed, D. M.: On the Pathological Changes in Hodgkin's Disease with Special Reference to Its Relation to Tuberculosis, Johns Hopkins Hosp. Rep. **10:** 133-196, 1902.

Patients have been known to remain in fairly good health for twelve to fourteen years, while others die within ten weeks. Some factors said to be associated with a good prognosis are a normal number of erythrocytes, a nearly normal sedimentation rate, localization of the disease in one area, definite enlargement of external nodes before treatment, gain in weight and absence of leukocytosis or leukopenia. Females have a better prognosis than males. Associated with a poor prognosis are splenomegaly, initial elevation of temperature, considerable pruritus, pulmonary involvement, predominant localization in the abdominal cavity, gastrointestinal symptoms, a steady fall in the number of red cells, decided lymphopenia, pronounced weight loss and a rapid sedimentation rate early in the disease. About 50 per cent of the patients die in the toxic state attending multiple visceral invasion or terminal disease associated with secondary infection. Many patients die with bone marrow exhaustion and aplasia. The secondary effects of roentgen therapy are said to have accounted for some deaths, but improvement in radiotherapeutic technics and more careful laboratory studies have reduced the mortality from this source.

Satisfactory treatment for Hodgkin's disease has not been found. For localized lesions, roentgen irradiation is the treatment of choice. For patients with disseminated lesions, the use of nitrogen mustard therapy with roentgen irradiation of selected specific areas appears to be the most effective method. The problem varies with each patient. Radiologists differ in their criteria of satisfactory therapy. While the palliative effectiveness of persistent, early and thorough roentgen therapy has been repeatedly demonstrated, it must be used with great care in the face of renal insufficiency, active tuberculosis in regions where roentgen therapy is to be applied, acute forms of Hodgkin's disease, toxic depression of the bone marrow and deleterious effects of previous irradiation. Radioactive phosphorus given intravenously has produced disappointing results. Surgical intervention may be necessary to relieve pressure symptoms. Prompt removal of the spinal cord block in paraplegia may be indicated in order to prevent permanent damage. Surgery in Hodgkin's disease involving accessible nodes is said to give better results than are usually expected. The list of chemotherapeutic agents which have been tried is long. Results with the sulfonamide compounds have been essentially negative, as have been repeated attempts by means of vaccines and other biologicals. Nitrogen mustards appear to act similarly to roentgen therapy and may be of great value when roentgen therapy is no longer effective.

The theories advanced concerning the nature of Hodgkin's disease include: It is (1) a neoplasm; (2) an inflammation; (3) a metabolic abnormality; (4) it is midway between an inflammation and a neoplasm. None of them has been proved. The disease has never been produced experimentally in animals. Neither Feldman, who has studied hundreds of neoplasms from animals, nor Fox, who has observed thousands of captive wild animals, has seen in them a case resembling Hodgkin's disease.

## ARTERIAL HYPERTENSION IN THE CHICKEN

Selye,[1] while investigating the pharmacology of corticoid hormones, discovered that overdosage with desoxycorticosterone acetate in the chick elicits nephrosclerosis, cardiovascular changes, water retention and diarrhea, symptoms similar to those of avian Bright's disease. This action of the corticoid hormone was especially readily obtained in birds given 0.3 per cent sodium chloride instead of drinking water. Selye also demonstrated that salt alone sufficed to produce in chicks a syndrome characterized by nephrosclerosis and disturbances of water metabolism. Krakower and Heino[2] found that in chicks on high salt intake there was elevation of blood pressure, a definite renal glomerular enlargement, new formation of glomerular tufts and increased tortuosity and medial hypertrophy of renal arteries and preglomerular arterioles.

Katz and his co-workers[3] report experiments in which chicks were placed on a diet of mash and tap water for sixteen days. Three control blood pressures on each chicken were taken during this period with the Hamilton manometer by means of a small needle inserted into the sciatic artery. The drinking water was then replaced by a 0.9 per cent sodium chloride solution. After thirty-three days when the rise in pressure was seen to be moderate, the sodium chloride concentration was increased to 1.2 per cent. The salt solution was replaced twenty-six days later by tap water for thirteen days. A second period of administration of 1.2 per cent salt solution was then instituted for twenty-two days. After a final period of ten days on tap water, the chickens were killed. The control blood pressures at the beginning of the experiment averaged 132 mm. of mercury systolic and 117 diastolic. The high level of the normal diastolic pressure in the chicken appears to be related to its high normal body temperature of 42 C.

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[1] Selye, H.: Production of Nephrosclerosis in the Fowl by Sodium Chloride, J. Am. Vet. M. A. **103**: 140-143 (Sept.) 1943.

[2] Krakower, C. A., and Heino, H. E.: Relationship of Growth and Nutrition to Cardiorenal Changes Induced in Birds by a High Salt Intake, Arch. Path. **44** :143-162 (Aug.) 1947.

[3] Lenel, R.; Katz, L. N., and Rodbard, S.: Arterial Hypertension in the Chicken, Am. J. Physiol. **152**: 557-562 (March) 1948.

The blood pressure did not rise significantly at the beginning of the administration of 0.9 per cent sodium chloride. At the end of seventeen days it had risen 22 mm. of mercury systolic and 17 diastolic. It then remained unchanged until the salt concentration was increased to 1.2 per cent. This produced a further increase of 25 mm. systolic and 9 mm. diastolic, with the average pressure reaching 183 mm. of mercury systolic and 154 diastolic. The total rise over the control values was 51 mm. of mercury systolic and 37 diastolic. When the salt was discontinued a prompt fall in pressure occurred, averaging 43 mm. of mercury systolic and 28 diastolic and bringing the pressure nearly to the control levels. With the readministration of salt in the drinking water, a rise in pressure was again observed, with a fall after the birds were again returned to ordinary tap water.

These authors regarded as significant the increase in both systolic and diastolic blood pressures in the birds during the course of high salt intake because the upward trend was present in all of the birds. Blood pressures in a control series of 5 normal young chickens taken over a period of eighty days was found to be remarkably constant. Also striking was the effect of the return to tap water, which produced an average drop of 43 mm. of mercury systolic and 28 mm. diastolic. The authors feel justified in assuming a direct relationship between high salt intake and the rise in blood pressure in the chicken. The mechanism of this phenomenon is not clear. An increased blood volume is probably not involved as their direct measurements showed, and as the pronounced loss of weight and dehydration would seem to indicate. Necropsies on these birds showed some hyperplasia and proliferation of glomerular tufts and Bowman's capsule with some compression of the capillaries.

The production of hypertension in the chicken by a high salt intake in the drinking water, the authors believe, is pertinent to the general problem of the genesis of hypertension. Thus, desoxycorticosterone, which affects the excretion of sodium and potassium, also produces changes in the blood pressure in men and animals. The low blood pressures seen in patients with addisonian disease are also associated with a low plasma sodium concentration, and this hypotension can be treated by the oral administration of sodium chloride. The recent emphasis on the use of salt-free diets in the treatment of arterial hypertension, which originated primarily on an empiric basis, may be considered to have some support from these and other findings.

## Current Comment

### FLUORINE VERSUS DENTAL CARIES

Attempts to determine the value of fluorine in the prevention of dental caries in rats are reported by Cheyne[1] of the College of Dentistry, University of Iowa. Since McClure[2] and others have presented data which show that significant reduction in the incidence of induced dental caries in rats is not demonstrable as a result of postnatal applications of fluorine, Cheyne limited his study to the effects of prenatal fluorinization. Eighteen young rats were obtained from mothers which had received daily administrations of potassium fluoride during pregnancy. As controls, 27 young were selected from mothers which had not received fluorine. Half of the fluorinized (mottled teeth) young and 12 of the 27 nonfluorinized young were subjected to total extirpations of the salivary glands[3] at the age of 24 days. On the forty-second day all animals were placed on a caries-producing diet,[4] without restriction on amounts of food and distilled water. After one hundred and four days on this diet, the animals were chloroformed and all molar teeth were examined under a binocular microscope. Doubtful teeth were decalcified and examined histologically. The number of fractured cusps, carious cuspal involvements and carious teeth was determined for each animal. Among the control nonfluorinized rats with intact salivary glands there was an average of 1.8 carious teeth per animal. In a parallel test with the fluorinized rats, there was an average of 1.5 carious teeth. Similar differences were noted in the two desalivated groups. The two nonfluorinized groups showed an average of 6.2 carious teeth per animal, while the average was 5 carious teeth in the two fluorinized groups. A more striking effect was seen in a study of the effect of desalivation. The two desalivated groups showed an average of 9.5 carious teeth per animal, while in the two control groups with normal salivary glands, the average was 1.7 carious teeth. No theory is as yet suggested to account for this apparent prophylactic effect of normal saliva.

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[1] Cheyne, V. D.: Proc. Soc. Exper. Biol. & Med. **67**: 149, 1948.

[2] McClure, F. J.: J. Nutrition **22**: 391, 1941.

[3] Cheyne, V. D.: J. Dent. Research **18**: 457, 1939.

[4] Hoppert, C. A.; Webber, P. N., and Canniff, T. L.: J. Dent. Research **12**: 161, 1932.

# ORGANIZATION SECTION

## Official Notes

### DR. BAUER TO ADVISE WITH AMERICAN MILITARY GOVERNMENT

Dr. W. W. Bauer, director, Bureau of Health Education, American Medical Association, will leave from New York March 3 for a three months' assignment in Germany. He has been designated visiting expert in the employ of the Army to advise with the American Military Government on problems of public health, health education and medical organization.

### "STANDARD NOMENCLATURE OF DISEASE AND THE STANDARD NOMENCLATURE OF OPERATIONS"

#### Meeting of the Editorial Advisory Board Held on Dec. 4, 1948, in the American Medical Association Building

Dr. George Baehr, Chairman

The agenda consisted of several suggested changes for the 1950 revision of the "Standard Nomenclature." After each suggestion was submitted to the Board for their approval, a discussion period followed in which the members stated their views.

1. Title (suggested changes):
    (*a*) To be left as is with the exception that the word "disease" should be changed to "diseases" to conform with "operations."
    (*b*) To be combined as "Standard Nomenclature of Diseases and Operations."
    (*c*) As other sections may be added, the combined title "Standard Nomenclature of Medicine" is suggested.

It was the unanimous opinion of the Board that the title for the fourth edition be "Standard Nomenclature of Diseases and Operations."

2. Inclusion of code numbers of "International Statistical Classification of Diseases, Injuries and Causes of Death." Place of inclusion:
    (*a*) The index is not suitable as it now stands because it is a general group index rather than a single disease index.
    (*b*) The body of the book appears to be a preferable place for insertions of these numbers because diagnoses are there broken down into more specific entities.

Dr. George Baehr, New York: Numbers of the International List should be included in the body of the book in italics and in parentheses. An addendum should be placed in back of the book. For example, rheumatic fever would be listed and then after it would be listed all the numbers in the text that referred to this disease. This method would greatly simplify the statistician's work.

Dr. E. T. Thompson, Chicago: This system would provide one standard translation so that each department would not have to make its own code. The record librarian could send her report in to the county health department in International numbers. This would make it much easier for the state health department when they received the report because it would save them the work of translating the diagnoses into International numbers for statistical purposes. The suggestion was made that the International List could be printed as a supplement to the "Standard Nomenclature" and sold separately.

Dr. Baehr: It is probable that if they are not published together, people will use the "International Classification" alone. It is the consensus that it would be wise to include the "International Statistical List of Diseases, Injuries and Causes of Death" and have it in the body of the text, as was done in the first edition, to the right of each term in parentheses and in clear italics. Then in the back of the book the International List numbers and diagnoses would be published in the form of an addendum. Under each of the International numbers there would be listed all of the code numbers in the "Nomenclature" that refer to it.

Dr. Morris Fishbein, Chicago: Before making a decision, it would be desirable to prepare a sample. For example, take the first heading and take the section in "Nomenclature" that deals with the same thing and make it up just as if it were going to be published in the book; then we will have an idea of how it looks before we actually do it.

Dr. Baehr: I do not think that one can take every entry in the "International List" that is going to be used because it will be too bulky and the book would have to have an index of many terms which were not even used in this country.

Dr. Fishbein: The book is already too big; that is, in the list of entries. A trial of a section should definitely be made and proofs sent out to committee members so that they can make recommendations or changes. The proofs can be made here at the American Medical Association. There is nothing more confusing than to open to an index and find listed after it 22 different numbers that refer you to something else.

Dr. Baehr: We will leave it then until we have a sample, and we have gone on record to include the "International List" in the forthcoming edition of "Standard Nomenclature."

Dr. Fishbein: The preface of the book should explain the difference between "Standard Nomenclature" and the "International List" so that the difference would be clear.

Dr. Thompson: The difficult part of the task is going to be to get the International number behind the Standard number.

Dr. Fishbein: The speed of medical progress is so great that many terms are out of date by the time that the work is published.

3. Inclusion of pathologic diagnoses:
    (*a*) Present overlapping; many diagnoses now listed can be used either as clinical or pathologic diagnoses.
    (*b*) A third number to indicate type of tissue involved in addition to numbers which now indicate topography and etiology has been suggested for use in coding pathologic diagnoses.

*Example: Hodgkin's Disease of Lung*

| Topographic | Etiologic | Tissue |
|---|---|---|
| Lung | Hyperplasia | Pleomorphic Histiocytic |
| 360 | 954 | (Code number to be given) |

As the book now stands diagnosis such as "Hodgkin's disease of lung" cannot be coded.
    (*c*) Additional pathologic diagnoses may be added to the end of each section to allow for both clinical and pathologic coding.

Dr. Richard Plunkett, Chicago: Dr. Perry is particularly interested in having a third number included. Some of the numbers that are now used are really tissue numbers and not topographic numbers.

Dr. James R. Miller, Hartford, Conn.: The idea is to make statistical research easier and not to do the work for the clinicians.

Dr. Plunkett: The book as it now stands codes according to etiology and topography, but some pathologic diagnoses are included.

Dr. Baehr: To do all the work before 1950 and to get the agreement from the pathologists would be impossible.

Dr. Plunkett: Diagnoses are coming in that refer to Hodgkin's disease of various organs. As the book now stands, it is impossible to provide a coding for such a diagnosis because Hodgkin's disease is a general disease and tissue would have to be specified as well as topography.

Dr. Halbert L. Dunn, Washington, D. C.: I suggest that pathologists develop a three column code of their own that would cross against "Standard Nomenclature" number.

Dr. Baehr: The pathologists should try this out before it is considered for this edition. They could have this on trial for a number of years so that their pathologic society could consider it, and then, afterward, if we approve of it, we could include it in "Standard Nomenclature." It is necessary for this committee to have the last word on everything that is done. Specialists tend to want their section of the book developed to the largest extent possible. Committees should not be full of extremists. We should make changes to keep up to date, and we should do it cautiously, and this committee should have the final word on everything. It is, then, the consensus of this Board that the pathologists themselves develop a pathologic classification which they should employ so that we can see how the system works.

Dr. Plunkett: There are many diagnoses in the book that are now both clinical and pathologic.

Dr. Thompson: Many of these problems are purely a matter of indexing.

Mrs. Adaline C. Hayden, Chicago: Pathologists are complaining that the book is not complete enough.

Dr. Baehr: We can get copies of a good list of pathologic diagnoses from the Institute of Pathology and let us examine them to see whether there are any useful parts that we can use. In regard to the adding of pathologic diagnoses to the end of each section to allow for both clinical and pathologic coding, let us defer action until we have time to examine the lists.

4. It is suggested that all supplementary terms be listed in one section rather than following each section.

Mrs. Hayden: Sections on supplementary terms should all be gathered together in one section so that there would be no trouble in finding them. This would simplify the record librarian's work.

Dr. Baehr: This arrangement would probably not be agreeable to the American Heart Association.

Dr. Thompson: Lists of supplementary terms should be indented in the book with a thumb index such as is at present done with the disease and operative indexes.

Dr. Baehr: It would be wise to refer this to the cardiovascular and nervous committees. Letters should be sent to the members of these committees telling them that there are four supplementary lists and that it would be much easier for the record librarian and all others using the book if all four lists were put into one section. Action relative to this matter shall then be deferred until we know how violent their reaction is going to be. Refer the matter to the committees when we set them up, and then bring it back again to this committee.

5. Should a dental committee be set up for the expansion of the dental section?

Dr. Plunkett: Hospitals which have dental departments do not feel that the two page dental section in "Standard Nomenclature" is sufficient.

Dr. Baehr: We should have some suggestions from the Dental Committee with the understanding that we are not writing a Nomenclature solely for dental purposes. It is the unanimous opinion of this Board that a dental committee be set up.

6. Suggestion has been made that eponyms be included in the index rather than as a separate section.

It was the consensus that the eponyms should be included in the general index.

7. Shall procedures be added to the operations' index such as, (Insufflation of uterus with air (Rubin's Test) )?

Dr. Baehr: We should ask for suggestions about procedures from various committees. The consensus was that the desirability of including procedures, therapeutic and diagnostic, to the operations' index should be explored by the committees, particularly by the committee on operations.

8. Decision is required on the retention of the anesthesia section. Most hospitals do not code anesthetics in their record departments.

Dr. Thompson: The section should be retained, and any new anesthetics should be included as a matter of terminology.

Dr. Baehr: The consensus is that the anesthesia section should be retained, improved and brought up to date.

Dr. Miller: Hospitals do not use the anesthesia section often. The section is not being used to advantage.

Dr. Baehr: Defer decision on this matter and refer to Dr. Plunkett for submission to committees for exploration.

9. Appointment of Nomenclature Committees:
   (a) It is suggested that committees of three be selected and approved by the Editorial Advisory Board from the list of suggested committee appointments which was distributed to each member of the Board. The persons listed have served previously or have indicated their willingness to serve in consultant or committee capacity for the 1950 revision. Other persons may be named by the Editorial Advisory Board.
   (b) Committees may be selected and contacted by the Editor and subsequently approved by correspondence with the chairman and other members of the Editorial Advisory Board.

Dr. Baehr: It is important that there be at least one member on each committee selected from the Chicago area whom the staff head can frequently consult. This member shall be given the chairmanship unless another member has indicated by his special interest that he serve in such a capacity, or unless some other member is extremely prominent in his field or specialty.

The Board decided to make the appointments. Names on the suggested list plus names which the Board submitted at the time, were all given consideration. In general, committees were set up consisting of three men in each of the fields. In some cases, more than three names were submitted in the event that alternates would be needed.

Dr. Fishbein: The staff should arrange a time schedule for work on the revision. Closing dates must be established. I suggest that the committee report its last material not later than Dec. 1, 1949, so that the book can go to the printer in February 1950, and be ready for publication about June in time for presentation at the American Medical Association meeting in June and for the record librarians' meeting in the fall.

Dr. Baehr: I suggest that we go over the "International List" to see whether we have omitted anything in our index.

Mrs. Hayden: I suggest that the operative index should immediately follow the disease index.

Dr. Edwin L. Crosby, Baltimore: It is suggested that the index be extended because an adequate alphabetic index is one of the most important parts of such a book. Terms should be listed alphabetically according to diseases.

The members of the Board viewed the flexoline files which had been set up for work on the 1950 revision.

Both the "Nomenclature" file and the hospital file (though at present not completed) met with the approval of all the members.

The meeting was adjourned at 1 p. m.

## Coming Medical Meetings

Annual Congress on Medical Education and Licensure, Chicago, Palmer House, Feb. 7-8. Dr. Donald G. Anderson, 535 N. Dearborn St., Chicago 10, Secretary.

Alaska Territorial Medical Association, Juneau, March 3-5. Dr. William P. Blanton, Box 2569, Juneau, Secretary.

American Academy of General Practice, Cincinnati, Netherlands Plaza Hotel, March 7-9. Mr. Mac F. Cahal, 231 W. 47th St., Kansas City, Mo., Executive Secretary.

American Association for Thoracic Surgery, New Orleans, March 29-31. Dr. Brian Blades, George Washington University Hospital, Washington, D. C., Secretary.

American College of Physicians, New York, March 28-April 1. Dr. George Morris Piersol, 4200 Pine St., Philadelphia 4, Secretary General.

American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, New York, Hotel Waldorf-Astoria, March 4. Dr. Norman N. Smith, 291 Whitney Ave., New Haven 11, Conn., Secretary.

Central Surgical Association, Cleveland, Hotel Cleveland, February 18-19. Dr. Walter G. Maddock, 250 E. Superior St., Chicago 11, Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, Palmer House, March 1-4. Dr. H. Kenneth Scatliff, 30 N. Michigan Ave., Chicago 2, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, March 14-17. Miss Thelma Webb, 1133 Medical Arts Bldg., Dallas, Executive Secretary.

Michigan Postgraduate Clinical Institute, Detroit, Book-Cadillac Hotel, March 23-25. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing 8, Mich., Secretary.

Missouri State Medical Association, Kansas City, March 27-30. Mr. T. R. O'Brien, 634 N. Grand Blvd., St. Louis 3, Secretary.

National Conference on Medical Service, Chicago, Palmer House, February 6. Dr. John S. Bouslog, 1612 Tremont Place, Denver Colo., Secretary.

New Orleans Graduate Medical Assembly, New Orleans, Municipal Auditorium, March 7-10. Dr. W. D. Beacham, 1430 Tulane Ave., New Orleans, Secretary.

Postgradute Assembly in Endocrinology, Association for the Study of Internal Secretions, Oklahoma City, Feb. 21-26. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary

# Washington Letter

*(From a Special Correspondent)*

Jan. 31, 1949.

## Health Bills Jam Hoppers of Senate and House

Approximately fifty medical research and public health bills were introduced in the first three weeks of the new Congress. All but five were filed, actually, in the first two weeks, the third week being that in which President Truman's inauguration was held and consequently one that witnessed few sessions of House or Senate.

Nine of the measures authorize a federally sponsored campaign of research in multiple sclerosis. Four are concerned with cancer and direct the President to mobilize world experts and conduct a $100,000,000 federal drive "to discover means of curing and preventing cancer." That efforts will be renewed in this Congress to create federal service positions for chiropractors is indicated by the early introduction of H. R. 1512, which authorizes their appointment in Veterans Administration. Its sponsor is Rep. Walter B. Huber (Democrat) of Akron, Ohio, who says he filed the bill at the request of the Veterans of Foreign Wars. It is similar to a measure introduced last year by Rep. James T. Patterson (Republican, Conn.) but which was pigeonholed in the Veterans Committee.

Ten Senators, led by Hill of Alabama, joined in introducing a bipartisan bill (S. 522) which provides for federal financial assistance to states and counties in development and improvement of local public health units. In content, it is the same as S. 132, introduced a few days earlier by Senator Chapman of Kentucky, except that it goes a step further and authorizes financial aid to public and nonprofit institutions offering training in public health. Senator Chapman is one of the cosponsors of S. 522.

Senator Johnson of Colorado introduced S. 458, which provides for a nationwide survey of physically handicapped persons. This measure was drafted by the American Federation of the Physically Handicapped, which also plans to support legislation on cerebral palsy, epilepsy and leprosy. Senators Pepper and Bridges are sponsors of a bipartisan bill to designate February 14 in each year as National Heart Week.

## Senate Labor and Public Welfare Committee

The Committee on Labor and Public Welfare of the Senate, as reconstituted for the Eighty-First Congress, held its first meeting on January 13. It is this committee, under chairmanship of Senator Elbert D. Thomas (Democrat, Utah), which will consider the Murray-Wagner-Dingell bill and handle most of the medical and public health legislation in this Congress. The thirteen member group is decidedly liberal in appearance, with Senators Thomas, Murray, Pepper, Douglas and Humphrey on the Democratic side and Senators Aiken and Morse among the Republican membership. Other members are Senators Hill and Neely, Democrats, and Taft, Smith and Donnell, Republicans. There is one vacancy on the committee, and it is expected to be filled by the new Senator from Kentucky, a Democrat, who will be appointed as successor to Vice President Barkley.

Not yet reorganized is the House Committee on Interstate and Foreign Commerce, which passes on virtually all health and medical legislation introduced in that branch of Congress prior to its transmittal to the floor for final action. Its chairman is Representative Robert Crosser (Democrat, Ohio). In the past, bills on compulsory sickness insurance have been referred to Ways and Means Committee, which have taken no action on them. This year, however, administration strategy apparently is to have Murray-Wagner-Dingell legislation handled on the House side by the Interstate and Foreign Commerce Committee, which already has received Representative John D. Dingell's (Democrat, Michigan) version of the measure. A companion measure sponsored by Representative Emanuel Celler (Democrat, New York) was sent to the Ways and Means Committee, but it is highly probable that the Dingell bill (H. R. 783) will be the administration's "bill of choice" if and when hearings are scheduled.

Among other newly introduced measures to be handled by the Senate Labor and the House Interstate committees are bills establishing a National Science Foundation (S. 247), authorizing a federal mental hospital in Alaska (H. R. 941) and permitting federal grants for construction of publicly and privately operated homes for the aged (H. R. 991).

## House Interstate Committee (Health Legislation) Organized

The first meeting of the newly formed House Interstate and Foreign Commerce Committee was scheduled for January 25, with indications that the twenty-eight member group would be divided into standing subcommittees for handling of special legislation. This is the committee that will consider and hold public hearings on all general health and medical research bills, including the Murray-Wagner-Dingell bill. Although in previous Congresses compulsory sickness insurance legislation has been referred to the Ways and Means Committee, it is known that the principal House sponsor, Representative John Dingell (Democrat, Michigan), is seeking to have the Interstate Committee take charge of the bill in the Eighty-First Congress.

The seventeen Democratic members of the committee are as follows: Robert Crosser (Ohio), chairman; Alfred L. Bulwinkle (N. C.), Lindley Beckworth (Texas), J. Percy Priest (Tenn.), Oren Harris (Ark.), George G. Sadowski (Mich.), Dwight L. Rogers (Fla.), Eugene J. Keogh and Arthur G. Klein (N. Y.), Thomas B. Stanley (Va.), John B. Sullivan (Mo.), William T. Granahan (Pa.), Andrew J. Biemiller (Wis.), John A. McGuire (Conn.), George H. Wilson (Okla.), Neil J. Linehan (Ill.) and Thomas R. Underwood (Ky.).

The eleven Republicans on the committee are: Charles A. Wolverton (N. J.), ranking minority member, who served as chairman in the Eightieth Congress; Carl Hinshaw (Calif.), Leonard W. Hall (N. Y.), Joseph P. O'Hara (Minn.), Wilson D. Gillette (Pa.), Robert Hale (Maine), Harris Ellsworth (Ore.), James I. Dolliver (Iowa), John W. Heselton (Mass.), Hugh D. Scott Jr. (Pa.) and John B. Bennett (Mich.).

All eleven Republicans were on the committee in the last Congress. On the Democratic side, additions are Representatives Klein, Stanley, Sullivan, Granahan, Biemiller, McGuire, Wilson, Linehan and Underwood.

## Inefficient Use of Scientists in Wartime is Subject of Report

The armed services made poor use, on the whole, of scientists in uniform during World War II, according to a study just published by Department of the Army. Based on answers to questionnaires filled out by 15,157 scientists and engineers who served in the armed forces as officers and enlisted men, the report was prepared by David M. Delo, chief of scientific man power in the Army's logistics division. Scientists whose professional skills were employed to best advantage were psychologists, geographers, engineers and physicists, in that order. Those most poorly utilized were biologists, geologists, chemists and mathematicians, in that order. Recommendations are made to the end that optimal employment of scientists may be achieved by the armed services in the future, but the report emphasizes that "adequate numbers of physicians and supporting personnel such as radiologists, bacteriologists and sanitary engineers must be reserved in civilian status to maintain the national health" in event of another war.

## American Red Cross Sends Measles Globulin to Hawaii

American Red Cross headquarters in Washington has announced shipment of 3,000 units of immune serum globulin to combat a measles outbreak in Hawaii. It was flown from San Francisco to Honolulu and brought to 11,000 units the total quantity shipped during the last few months. According to the Red Cross, the Honolulu Board of Health attributes the low death rate in the measles epidemic to use of the globulin.

# Medical Legislation

## STATE LEGISLATION

### Arizona

**Bill Introduced.**—H. 1 proposes to vest in the State Department of Health administration of the program of **service for crippled children** and proposes to make it the duty of such department to, among other things, provide for medical, surgical, corrective and other services and care, and facilities for diagnosis, hospitalization and aftercare.

### Arkansas

**Bill Introduced.**—H. 23 proposes the creation of a **financing board for Arkansas medical students** and to direct such board to prescribe appropriate forms for loan applications and to prescribe reasonable rules and regulations to carry out the purposes of the act, namely, to assist in financing medical students who need aid in order to complete their education.

### California

**Bills Introduced.**—A. 165, **to amend the labor code,** proposes to entitle an employee to all medical services at the expense of the employer. A. 191, **to amend the labor code,** proposes to authorize the appointment by the Industrial Commission of a medical director, who shall be licensed to practice medicine in the state. A. 252 proposes to make it a misdemeanor for any person **to perform an autopsy** on a dead body without having first obtained the written authorization of the coroner or other authorized public officer, or the person who has the right of disposition of the body. A. 259, to amend the health and safety code **relating to hospital districts,** proposes that no person shall be excluded from any hospital district because his or her attending physician and surgeon is a member of any particular school of practice so long as the attending physician is licensed as a physician and surgeon under the provisions of Chapter 5, Division 2, of the Business and Professions Code, provided, however, that the provision of this section shall not prohibit the board from denying to any physician and surgeon the right to practice in any hospital under their management for cause arising from his professional conduct or ethics. A. 310, **to amend the labor code,** proposes that all medical records, pictures or other pertinent data in the hands of or under the control of the employer or his representative shall be made available to any consulting or attending physician without cost to the employee. A. 481, to amend the business and professions code, proposes to require the **pathologists** in each hospital in the state **to prepare slides of all tissues removed** from patients in that hospital and to send such slides to the Board of Pathology for examination. The board would be required to examine all such slides. The proposal then would provide that the removal of normal tissues on six occasions within any six months would constitute unprofessional conduct on the part of the pathologist. A. 514 proposes the creation of a **State Board of Audiometry** which is defined as the measurement of the powers or range of human hearing and the prescribing, fitting or selling of hearing aids. A. 523, to amend the business and professions code, proposes that any person who has been licensed as a physician and surgeon by either the Board of Medical Examiners or the Board of Osteopathic Examiners, but not both boards, and who holds the degrees of doctor of medicine and doctor of osteopathy from a school of medicine and a school of osteopathy, **must use both titles** or abbreviations thereof in connection with his name. A. 555 proposes to authorize the board of medical examiners to grant licenses for **the practice of physical therapy,** which is defined as the treatment of any bodily or mental condition of any person by the use of the physical, chemical, and other properties of heat, light, water, electricity, massage, and active and passive exercise. The use of roentgen rays and radium for diagnostic and therapeutic purposes, and the use of electricity for surgical purposes, including cauterization, are not authorized under the term "physical therapy" as used in this proposal. S. 11, **to amend the business and professions code,** proposes to define the practice of optometry as, among other things, the prescribing and directing of ocular exercises, visual training, vision training, orthoptics, and any other methods for the aid or improvement of human vision and the prescribing of contact lenses for, or the fitting or adaptation of contact lenses to the human eye. S. 16 and S. 72, **to amend the business and professions code,** propose to authorize the board of osteopathic examiners to issue a physician's and surgeon's certificate. S. 36, **to amend the business and professions code,** proposes that any physician and surgeon whose name appears on an eligible list for state civil service is not required to hold a physician's and surgeon's certificate in order to practice medicine as an employee of the state within state institutions, prisons or homes. S. 117 proposes the creation of a **Board of Physical Therapy** Examiners and defines the term "physical therapy" as meaning "the performing for compensation, received or expected, of any professional service requiring special education, knowledge or skill, in the treatment or alleviation of any human ailment, deformity, fatigue, disease, injury, pain, or other physical or mental condition, by physical means, including the various 'modalities' of electricity (except x-ray, radium and electrosurgery), light, heat, water, exercise and therapeutic massage." Therapeutic massage is defined as meaning "the kneading, rubbing and massaging of the human body, whether with or without such appliances as steambaths, vapor-baths, electric light baths, electric vibrators or any other similar methods, but does not include any use of electricity for therapeutic purpose except the use of electric light baths and electric vibrators. S. 125 proposes the enactment of a Licensed **Practical Nurse Act** and defines nursing as "such nursing duties as are required in the physical care of a patient in carrying out of medical orders as prescribed by a licensed physician, requiring an understanding of nursing skills, but not requiring the professional nursing services as defined in the Nursing Practice Act." S. 131, **to amend the education code,** proposes that a supervisor of health report to the parent or guardian shall not include any recommendations suggesting or directing the pupil to a designated individual or class of practitioners for the purpose of curing any defect referred to in the report. S. 157 proposes the enactment of a **California prepaid health service** act. S. 203 proposes to authorize the State Board of Health to grant **permits for the use of x-rays** or radiographs by individuals and makes it unlawful for persons not possessing such a permit to make use of the x-ray device or to operate x-ray laboratories.

### Georgia

**Bill Introduced.**—S. 19 proposes to amend the hospital service plan enabling act so as to permit the creation of **nonprofit medical service plans.**

### Illinois

**Bills Introduced.**—S. 19 proposes the creation of an Illinois State Alcoholics Hospital for the treatment and care of **persons afflicted with alcholism.** S. 21 proposes the creation of a Commission on Professional and Vocational Standards to make a survey of all regulatory measures relative to vocations, professions and semiprofessional vocations concerning existing qualifications, together with qualifications that are desired by various professional and vocational groups to raise their standards and to improve their specialized talents.

### Indiana

**Bill Introduced.**—S. 50 proposes the creation of an Indiana State **Board of Nurses Registration** and Nursing Education and provides for the licensing of nursing which is defined to mean "any person who for compensation or personal profit (a) as a registered nurse performs any professional services requiring the application of principles of the biological, physical and social sciences, and nursing skills in the care of the sick, in the prevention of disease or in the conservation of health or (b) as a licensed practical nurse performs such duties as are required in the physical care of a convalescent, a chronically ill and an aged or infirm patient and in carrying out of medical orders as prescribed by a licensed physician, requiring a knowledge of simple nursing procedures but not requiring the professional knowledge and skills required for professional nursing."

### Iowa

**Bills Introduced.**—H. 60 proposes the enactment of an Iowa Drug and Cosmetic Act which would provide, among other things, that a drug **shall be deemed to be misbranded** if sold at retail and containing any quantity of aminopyrine, barbituric acid, pituitary, thyroid, or their derivatives unless it is sold on a written prescription signed by a doctor, dentist or veterinarian who is licensed by law to administer such drug or device and its label bears the name and place of business of the seller, the serial number and date of such prescription, and the name of the doctor, dentist or veterinarian. In general, this bill contains all the provisions of the uniform food, drug and cosmetic act. S. 103 proposes amendments to the nursing act for the purpose of **licensing practical and registered nurses.** This proposal would provide that any person shall be deemed to be engaged in the practice of nursing as a practical nurse who performs such duties as are required in the physical care of a convalescent, a chronically ill or an aged or infirm patient, and in carrying out such medical orders as are prescribed by a licensed physician or nursing services under the direct supervision of a registered nurse, requiring the knowledge of simple nursing procedures but not requiring the professional knowledge and skills of a registered nurse.

### Massachusetts

**Bills Introduced.**—H. 64 and S. 127 propose to authorize school committees to establish, maintain and operate **school lunch programs** in accordance with the provisions of the National School Lunch Act. H. 102, relating to the development of a state hospital construction program, **proposes to define hospital** so as to include public health centers and general, tuberculosis, mental, chronic disease and other types of hospitals and related facilities, such as laboratories, outpatient departments, nurses' homes and training facilities and central service facilities operated in connection with hospitals, but shall not include any hospital primarily furnishing domiciliary care. A proposal also provides for the creation of an advisory hospital council to advise and consult with the department of public health in the administration of the act. H. 193 proposes the creation of a special commission to investigate the conditions in the department of **mental health and hospitals** under its supervision, including the financial management of such hospitals, the food, care, treatment of inmates and employees of such hospitals, improper detention of inmates who are not in need of hospitalization and other matters. H. 194 proposes the creation of a special commission for the purpose of making a study of **the cancer problem** within the commonwealth. H. 226 and H. 435 propose to direct the University of Massachusetts to immediately establish **schools of medicine.** H. 513, to amend the law relative to operating a **motor vehicle** while under the **influence of liquor,** proposes that any person who is held in custody and charged with operating a motor vehicle while under the influence of liquor shall be permitted to use a telephone, at his own expense, for the purpose of calling a physician of his own choice to make an examination of his condition. H. 1442 proposes that any **tax-exempt medical,** dental or pharmaceutical **college,** and other types of institutions, shall be subject to the following regulation: students shall not be admitted or denied admittance in accordance with any quota system based on race, creed, color, national or regional origin, places in each entering class shall be open to the most qualified students chosen in order of their rank by process of open examination, and examination questions and grades shall be on file and checked by the state commissioner of education. S. 45, to amend the law relating to evidence, proposes to authorize the admission in evidence of **microphotographic film** in all instances that the original record thereof would have been admitted.

# GOVERNMENT SERVICES

## ARMY

### CONSULTANTS TO THE PANAMA COMMAND IN 1948-1949

The Surgeon General's Office has been carrying out a program designed to bring to the Army Medical Department in the Panama Area the latest advances in the field of medicine and in so doing assigned during 1948-1949 the following civilian consultants to aid in this work:

| Name | Residence | Specialty |
|---|---|---|
| | OCTOBER 1948 | |
| Conn, Jerome W. | Ann Arbor, Mich. | Internal medicine |
| Kimbrough, James J., Col. | Washington, D. C. | Urology |
| | NOVEMBER 1948 | |
| Bennett, Granville A. | Chicago | Pathology |
| Poor, David H. | Atlanta, Ga. | General surgery |
| | DECEMBER 1948 | |
| Heilbrun, Norman | Buffalo | Radiology |
| | JANUARY 1949 | |
| Miller, Don A. | Warren, Ohio | General surgery |
| Most, Harry | New York | Medicine |
| Vail, Derrick | Chicago | Ophthalmology |
| | FEBRUARY 1949 | |
| Nesbit, Reed M. | Ann Arbor, Mich. | Urology |
| | MARCH 1949 | |
| Berry, Frank B. | New York | General surgery |
| | APRIL 1949 | |
| Ball, Robert P. | New York | Radiology |
| | MAY 1949 | |
| Elkin, Daniel C. | Emory, Ga. | General surgery |
| Simpson, G. Victor | Washington, D. C. | Ophthalmology |
| | JUNE 1949 | |
| Brown, Thomas McP. | Washington, D. C. | Medicine |
| Curtis, W. R. | El Paso, Texas | Urology |

### POSTGRADUATE INSTRUCTION

The following medical corps officers have been accepted by the civilian institutions indicated for postgraduate instruction: Lieutenant Colonels George B. Green, course in therapeutics, George Washington University, Washington, D. C., and George M. Plagens, course in psychiatry, George Washington University, Washington, D. C.; Captain Walter B. Watson, residency in pediatrics, Babies Hospital–Coit Memorial, Newark, N. J.; First Lieutenants Harry D. Arnold, course in ophthalmology, Fulton-DeKalb Hospital Authority, Atlanta, Ga.; Arthur J. Crumbley, course in surgery, Grady Memorial Hospital, Atlanta, Ga.; David J. Hughes, residency in medicine, Grady Memorial Hospital, Atlanta, Ga.; Charles H. Lasley, course in surgery, Grady Memorial Hospital, Atlanta, Ga.; Fred D. Ownby, course in pathology, Emory University, Emory University, Ga., and Harold L. Wilkins, internship in medicine, Boston City Hospital, Boston.

### ARMY MEDICAL LIBRARY

The Surgeon General has appointed the following additional honorary consultants to the Army Medical Library: Dr. Raymond B. Allen, President, University of Washington; Dr. Chester N. Frazier, professor of dermatology, Harvard University; Richard H. Shyrock, professor of American history, University of Pennsylvania, and George Urdang, professor of history of pharmacy, University of Wisconsin.

The agent of the Army Medical Library in Japan has just cleared the necessary paths for export from that country, and his first shipment of recent Japanese medical books is expected at any time. Two cases of journals and books supplied on an exchange basis have just been received, and among these are all of the issues needed to complete the files of the various sections of the *Japanese Journal of Medical Sciences.*

### PERSONALS

Major General Raymond W. Bliss, Surgeon General, was awarded an honorary fellowship at the annual congress of the American College of Surgeons in Los Angeles. General Bliss has been a fellow of the College for many years. In 1920 he took a special course in surgery at Harvard Medical School, and subsequently was chief of surgery at Sternberg General Hospital in Manila, at Fort Sam Houston, Texas, and at the William Beaumont General Hospital, El Paso, Texas. During the recent war, he was chief of operations in the Surgeon-General's Office, later becoming Assistant Surgeon General, then Deputy Surgeon General, and on June 1, 1947, Surgeon General of the Army.

Major Edward J. Dehne, M.C., has been decorated with the Order of Leopold II by the Belgian Government in recognition of his wartime services in the European Theater as a public health specialist. Major Dehne is now chief of the medicine section of the Army Industrial Hygiene Laboratory at the Army Chemical Center in Maryland.

## VETERANS ADMINISTRATION

### CANCEL 24 NEW HOSPITAL PROJECTS

The Administrator of Veterans Affairs, Carl R. Gray Jr., announces that a study of the hospital expansion program has shown that the estimated needs for hospital beds made immediately after the war were considerably larger than has proved necessary and that the President has ordered a reduction of 16,000 beds. To effect this, the Veterans Administration plans the cancellation of twenty-four new hospitals and a reduction in the size of fourteen others; none of these hospitals is beyond the planning stage. The Veterans Administration currently has thirty-one new hospitals in various stages of construction. Mr. Gray indicated that even under the curtailed program the Veterans Administration will be able to admit an even larger proportion of non-service-connected patients than at present. The principal reasons for cancellation of proposed construction are: (1) inability of the Veterans Administration fully to staff its present hospitals and a further definite shortage of professional personnel to staff new hospitals; (2) estimated possible maximum load of service-connected patients is 51,000, leaving more than twice as many other beds available to other veteran patients; (3) temporary hospitals taken over from the armed forces at the end of the war are remaining serviceable beyond original estimates and will not need immediate replacement as had been contemplated, and (4) the delay will give the Veterans Administration a full opportunity, in the light of experience with World War II patients, to develop further a program which meets the lasting needs of all veterans.

At present, the Veterans Administration has 110,433 beds in its own hospitals, but, because of lack of doctors, nurses, technicians and other personnel, operates only 103,533 beds with about 93,000 patients. In emphasizing the problem of staffing new hospitals, Mr. Gray declared that recent experience had demonstrated the necessity of locating new hospitals in places where professional resources are available. He said that elimination of the proposed new beds would result in a saving of $280,000,000.

The hospitals scheduled to be eliminated under terms of the President's order are:

| Location | Type | Beds |
|---|---|---|
| New York | Rehabilitation | 1,000 |
| Harrisburg, Pa | General medical | 200 |
| Charlotte, N. C | General medical | 500 |
| Salisbury, N. C | Neuropsychiatric | 921 |
| Americus, Ga | Tuberculosis | 250 |
| Chattanooga, Tenn | General medical | 500 |
| Gainesville, Fla | Neuropsychiatric | 1,000 |
| Greenville, S. C | General medical | 200 |
| Memphis, Tenn | Neuropsychiatric | 1,000 |
| Tallahassee, Fla | General medical | 100 |
| Thomasville, Ga | General medical | 100 |
| Grand Rapids, Mich | General medical | 200 |
| Toledo, Ohio | Neuropsychiatric | 1,000 |
| Decatur, Ill | General medical | 250 |
| Duluth, Minn | General medical | 200 |
| Norman, Okla | Neuropsychiatric | 750 |
| El Paso, Texas | Neuropsychiatric | 500 |
| Houston, Texas | Neuropsychiatric | 1,000 * |
| Mound Bayou, Miss | General medical | 200 |
| Tupelo, Miss | General medical | 200 |
| Klamath Falls, Ore | General medical | 200 |
| San Diego, Calif | General medical | 200 |
| Columbia, S. C | General medical | 200 † |
| Detroit | Tuberculosis | 500 |

* Cancelled, with beds replaced by the Veterans Administration's taking over Houston U. S. Naval Hospital.

† Addition.

Projects to be altered in size from the present plans are:

| Location | Type | Beds From: | Beds To: |
|---|---|---|---|
| Syracuse, N. Y | General medical | 1,000 | 500 |
| Philadelphia | General medical | 1,000 | 500 |
| Pittsburgh | General medical | 1,200 | 750 |
|  | Neuropsychiatric | 1,250 | 1,000 |
|  | General medical | 750 | 500 |
| Atlanta, Ga | General medical | 750 | 500 |
| Cincinnati | General medical | 750 | 500 |
| Cleveland | General medical | 1,000 | 500 |
| Cleveland | Neuropsychiatric | 1,250 | 1,000 |
| Louisville, Ky | General medical | 750 | 500 |
| Chicago | General medical | 1,000 | 500 |
| Kansas City, Mo | General medical and tuberculosis to all tuberculosis | 745 | 500 * |
| New York | General medical | 1,000 | 1,250 |
| Oklahoma City | General medical | 1,000 | 500 |
| St. Louis | General medical | 1,000 | 500 |

* Originally planned for 495 general medical and 250 tuberculosis beds; now 500 tuberculosis beds.

## THE TRAINING OF HOSPITAL MANAGERS

The Veterans Administration announces the establishment of an *institute to train newly appointed hospital* managers in policies and procedures of Veteran Administration hospital management. Some twenty persons are expected to attend the four weeks' session to be held in the Veterans Administration's Central Office in Washington, D. C. On completing the course, the "students" will be assigned for one month's duty at the hospitals of the five instructors. At the end of the month, they will return to their respective hospitals. The institute will cover legal medicine, hospital maintenance, public relations, public speaking, hospital planning, personnel management and other topics. Lectures by authorities in these fields will be followed by workshop roundtables and discussions. The institute is expected to be repeated semiannually.

## OUTPATIENT TREATMENT OF VETERANS

Nearly 2,000,000 veterans received outpatient treatment during the fiscal year ending June 30, 1948. The treatments were given by the Veterans Administration at regional offices, hospitals and clinics, and by private physicians cooperating with the Veterans Administration in providing "home town" care for veterans with service-connected disabilities. Treatments averaged 3 per veteran, or a total of 5,233,680. Private physicians treated 761,185 veterans, or about 40 per cent of the total. The physicians were paid $11,437,870 for 2,735,450 treatments, for an average of $4.18 per treatment or $15.03 per veteran undergoing medical care. Veterans Administration staff doctors during the year treated 1,176,657 individual veterans and provided a total of 2,498,230 treatments.

## HOSPITAL NEWS

Sealed bids are being accepted for the construction of a 500 bed general hospital for the Veterans Administration at Indianapolis including, in addition to the hospital building, nurses' quarters, an apartment building for staff members, manager's quarters, attendants' quarters and other buildings.

# PUBLIC HEALTH SERVICE

## OUTBREAK OF YELLOW FEVER IN PANAMA

For the first time since 1905 an outbreak of yellow fever has occurred in the Republic of Panama, with 8 cases and 6 deaths, as of January 19, in and about Pacora, about 22 miles from Panama City. The National Institutes of Health of the U. S. Public Health Service have donated and sent to Panama a quarter-million doses of yellow fever vaccine which came from the Rocky Mountain Laboratory of the institutes at Hamilton, Mont. The first shipment of 75,000 doses was sent by Air Force plane direct from Montana January 16, and the second shipment of 175,000 doses was flown by commercial plane from Montana to New York and then sent by boat to Panama. The Panama Canal office in Washington also arranged for the shipment of 1,000 blood-collecting tubes from Walter Reed Hospital which were contributed by the Army.

## FLUORIDE DEMONSTRATION TEAMS IN 26 STATES

Thirty-four states and all the territories have requested the assignment of topical fluoride demonstration teams; and teams are already at work in twenty-six states, Alaska and the District of Columbia, demonstrating the technic of application of sodium fluoride to the teeth and showing how a topical fluoride program can be organized on a community basis. The Eightieth Congress authorized $1,000,000 for a program which provided for the organization at the request of state health departments of demonstration units composed of a dentist, two dental hygienists and a clerk. According to the Public Health Service, the stimulus for the program grew out of the discovery that a solution of sodium fluoride will curb decay in children's teeth by an average of 40 per cent. Following is the list of states and territories which already have been assigned demonstration teams:

Alaska
Arkansas
Colorado
Connecticut
Delaware
District of Columbia
Florida
Illinois
Indiana
Kansas
Maine
Maryland
Massachusetts
Michigan
Missouri
Nevado
New Hampshire
New York
North Dakota
Oklahoma
Pennsylvania
Rhode Island
South Carolina
Tennessee
Virginia
Washington
West Virginia
Wyoming

## POSTGRADUATE INSTRUCTION

The following public health officers have been assigned to the institutions indicated for postgraduate instruction: Surgeon Robert W. Rasor in training at the Chicago Institute for Psychoanalysis; Senior Assistant Surgeon Gove Hambidge Jr. in training at Columbia University School of Psychoanalysis; Senior Assistant Surgeon Robert L. Faucett in training as a resident in psychiatry at the University of Minnesota, Minneapolis; Assistant Surgeon Robert H. Dysinger in training at the Bellevue Hospital, and Assistant Surgeon John P. Utz in training in biochemistry at the Graduate School of Georgetown University.

## PERSONAL

Dr. Paul Chanson, of the National Center of Scientific Research, Bellevue, France, has arrived at the National Institutes of Health, Bethesda, Md., for a six month research fellowship. He will work in the Laboratory of Physical Biology with Dr. R. W. C. Wyckoff on the design of special lenses for the electron microscope.

# Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

## ALABAMA

**Alabama Doctors Overwhelmingly Disapprove Compulsory Health Insurance.**—The Medical Association of the State of Alabama through its Committee on Medical Service and Public Relations recently wrote a letter to every doctor in the state, whether or not a member of the association, asking him to state whether he approved or disapproved the proposed National Compulsory Health Insurance. Replies were received from 1,306 doctors, or two thirds of those who received the letter. Of this number 96 per cent voted disapproval of the National Compulsory Health Insurance and 2.3 per cent approved; 1.3 per cent returned their ballots without voting, and 0.4 per cent answered in such a manner that the ballot could not be classified.

The Committee on Medical Service and Public Relations of the state medical association also voted approval of the following program for the betterment of medical service: (1) direct appropriations for the building of hospitals and clinics in sparsely settled areas; (2) enlargement of the medical school facilities for the education of more doctors, nurses, dentists and technicians; (3) the extension of voluntary insurance coverage to all classes of people and extension to the indigent groups through appropriations by local and state governing bodies; (4) inspecting, grading and licensing of hospitals and clinics for the purpose of improving the medical staffs and hospital facilities and services, and (5) plans for the care of old age and destitute persons, perhaps through nursing homes.

## ARKANSAS

**Course in Pediatrics.**—A postgraduate course in pediatrics will be given by the department of pediatrics, University of Arkansas School of Medicine, Little Rock, March 11-12 from 9 a. m. to 5 p. m. Guest speakers will be Drs. James G. Hughes, associate professor of pediatrics, University of Tennessee, Memphis, Tenn., and Dr. Myron E. Wegman, professor of pediatrics, Louisiana State University, New Orleans. Physicians interested are invited to attend and to notify Dr. William A. Reilly at the University of Arkansas School of Medicine, Little Rock.

## CALIFORNIA

**Gift to Hospital.**—A 2 acre country estate including a fourteen room house and cottage has been presented to the Cedars of Lebanon Hospital, Los Angeles, by Al Jolson, according to newspaper reports. The property, valued at $160,000, will probably be sold and the money devoted to financing a 100 bed wing at the institution.

**Society News.**—At the annual meeting of the San Francisco County Medical Society in December Dr. Ivan C. Heron was elected president and Dr. M. Laurence Montgomery was reelected secretary-treasurer and editor of the *Bulletin.*——The Los Angeles County Medical Association in December elected Dr. Benjamin M. Frees president and Dr. Richard O. Bullis secretary-treasurer.

**Fifty Year Practitioners.**—At the seventy-ninth annual meeting of the Alameda County Medical Association in Berkeley November 15, tribute was paid to ten doctors in a program which was presented as "A Night in '98." Those doctors honored were Drs. Kirby B. Smith, William B. Stephens, Edward Norton Ewer, Hayward G. Thomas, Manuel M. Enos, Murrey L. Johnson, Edward S. DePuy, Henrich W. Kohlmoos, Eva L. Harris and Clara M. Holmes-Brazelton.

## COLORADO

**Penrose Cancer Hospital.**—A part of the facilities of the Glockner-Penrose Hospital, Colorado Springs, including its richly endowed radiotherapy department and a number of hospital beds, is to be reserved for use by cancer patients and will be known as the Penrose Cancer Hospital. Dr. Juan A. del Regato, formerly associated with the Ellis Fischel State Cancer Hospital of Columbia, Mo., has been appointed director. Dr. del Regato is a graduate of the Université de Paris Faculté de Médecine, 1937, and received his training in radiotherapy at the Foundation Curie of Paris. The Penrose Cancer Hospital expects to coordinate and stimulate the efforts of the members of the medical staff, centralizing the facilities for the diagnosis and treatment of cancer; the organization of the medical work on a high scientific standard should provide enviable opportunities for training of young physicians in the diagnosis and treatment of cancer. This will fulfil the wishes of the late Spencer Penrose and achieve the favorite project of his widow, Mrs. Julie Penrose of Colorado Springs.

## CONNECTICUT

**Committee on Emergency Medical Service.**—The Connecticut State Medical Society's council has announced formation of a Committee on Emergency Medical Service to augment the work being done by the national committee of the American Medical Association in planning defense for the civilian population in event of national emergency. The committee is headed by Dr. William B. Smith, Hartford, and its members are Drs. C. Frederick Yeager, Bridgeport; Orpheus J. Bizzozero, Waterbury; George M. Smith, Pine Orchard, and Benjamin B. Whitcomb, Hartford. Other members will soon be appointed to represent the Connecticut State Department of Health, the Connecticut Nurses' Association and the Connecticut Hospital Association.

**Connecticut Medical Service Elects Officers.**—Robert S. Judd, New Haven, was elected chairman of the twelve member Board of Directors of Connecticut Medical Service at a recent organization meeting of the new nonprofit medical care plan adopted by the state medical society's house of delegates last December (The Journal, Dec. 25, 1948, p. 1246). Mr. Judd is director and first vice president of the Grace-New Haven Community Hospital and vice president of the Southern New England Telephone Company. Other officers include Drs. Joseph H. Howard, Bridgeport, vice president; Louis F. Middlebrook, Hartford, secretary, and George R. Willis, New Haven, treasurer. Dr. Creighton Barker, executive secretary of the state medical society, was appointed acting director.

## ILLINOIS

**Community Honors Dr. Whited.**—More than 1,000 persons on January 8 gathered at the home of Dr. David F. Whited, Dahlgren, to honor the doctor, who has practiced in that community for fifty years, on the occasion of his seventy-sixth birthday. More than 2,000 contributors made possible the presentation to Dr. Whited of a new business coupé and a gold watch, and to Mrs. Whited a complete living room suite. Dr. Andy Hall, Mt. Vernon, made the presentation speech, lauding Dr. Whited for his unselfish service to the people of this area.

### Chicago

**Prenatal Nutrition Service.**—Chicago Health Department nutritionists now present diet information for mothers' classes at three prenatal clinics in the city. Individual advice to expectant mothers with special nutritional problems is also given. The average monthly attendance at the three clinics is 125, with 30 new cases a month. The nutritional instruction is free of charge to women who do not have a private physician.

**Personal.**—Paul L. Munson, formerly head of endocrinology research for Armour and Company, has been appointed research assistant professor in the department of pharmacology, Yale University School of Medicine, New Haven.——John S. Laughlin, Ph.D., who has been associated with the cyclotron and betatron projects at the Urbana campus of the University of Illinois, has been appointed assistant professor of radiology and radiation physicist at the University of Illinois College of Medicine, Chicago.

**Grants for Research.**—The University of Illinois College of Medicine has received five research grants totaling $14,346. The largest of these, $5,346, was a grant from Eli Lilly and Company of Indianapolis for studies in mumps vaccination. Other grants were: $3,500 from the LaRabida Jackson Park Sanitarium for the study of rheumatic fever; $3,000 from the G. D. Searle Company, Chicago, for research on bronchial asthma; $2,000 from Smith, Kline and French, Philadelphia, for the study of the effect of amines in experimental renal and other hypertensions, and $500 from the Commonwealth Fund for a study of nucleic acid.

**Appointments to Northwestern Faculty.**—Three appointments have been made to the Northwestern University Medical School faculty. Dr. Paul A. Campbell, a graduate of Rush Medical College and a former member of the faculty of the University of Illinois, has been appointed assistant professor of otolaryngology. Dr. Anna Hamann, a graduate of the University of Munich medical school and a member of the University of Chicago faculty, has been appointed assistant professor of radiology. Dr. Robert Shrek, since 1941 chief of the Tumor

Research Unit of Hines (Ill.) Veterans Administration Hospital, has been appointed assistant professor of pathology. He served in the Medical Corps from 1942 to 1944 and has been assistant in pathology at Yale University.

## INDIANA

**Fifty Year Club.**—At the first anniversary meeting of the Fifty Year Club of the Indiana State Medical Association, thirty-eight Indiana physicians became members of the club, making the present total membership 242.

**General Practitioner Meeting.**—The first scientific session of the Indiana Academy of General Practice will be held in Indianapolis February 9. All members of the Indiana State Medical Association are invited to attend both the afternoon and dinner meetings. The program beginning at 1:30 p. m. in the auditorium of the Indiana University School of Medicine is as follows:

Virgil McCasty, Princeton, Appendicitis in the Small Hospital.
John D. Van Nuys, Indianapolis, Educational Requirements of Undergraduates and Graduates in General Practice.
Walter L. Portteus, Franklin, Economics of General Practice.

At the general meeting Dr. Walter C. Alvarez, Rochester, Minn., will speak on "Puzzling Functional Troubles Found in Practice."

## MINNESOTA

**The Kenny Institute.**—The Sister Kenny Institute in Minneapolis, founded in 1942 at the Lymanhurst Hospital, has undergone a reorganization of its staff. With the appointment of Dr. Edgar J. Huenekens, pediatrician of Minneapolis, as chief of staff of the institute last August, the addition of Dr. Miland E. Knapp as chief of physical medicine in charge of treatment and training of physical therapists, also of Dr. John F. Pohl as consulting orthopedic surgeon, Dr. Sigsbee R. Seljeskog and others, the institute is assured of first class professional supervision.

## NEW HAMPSHIRE

**New Orthopedic Clinic.**—The Hitchcock Clinic and the Division of Crippled Children's Services of the New Hampshire State Department of Health are cooperating in holding an orthopedic clinic at the Hitchcock Clinic in Hanover. The clinic will be held on the fourth Friday of each month, from 8:30 to 10:30 a. m. Cases will be limited to 15 for the time being. Appointments are to be made at least one week in advance through Mr. Allen E. Howland, executive secretary, Hitchcock Clinic, Hanover. In addition to orthopedic services, consultation for plastic and neurologic defects will be available on referral. There is no fee. Persons under 21 years of age will be accepted.

## NEW YORK

**Postgraduate Lectures.**—The Medical Society of the State of New York in cooperation with the New York State Department of Health has arranged for a joint meeting of the Richmond County Medical Society and its Woman's Auxiliary March 9, 9 p. m., at Atlantic Inn, Staten Island. Dr. Louis H. Bauer, Hempstead, Long Island, will speak on "Socialized Medicine." The Clinton County Medical Society will hear Dr. Howard T. Behrman, New York, speak on "Modern Treatment of Skin Diseases" March 17, 8:30 p. m., at the Champlain Valley Nurses' Home, Plattsburg.

**Personals.**—Drs. Margaret M. Janeway, New York, and Thomas A. McGoldrick, Brooklyn, have been appointed by Governor Dewey as medical representatives on the State Industrial Council. Dr. Janeway will serve a full three year term and Dr. McGoldrick will fill the unexpired term of Dr. Nathan B. Van Etten, recently resigned. The council acts in an advisory capacity to the state industrial commissioner.——Dr. Howard McC. Snyder, member of the committee to the President of the U. S. on Integration and Improvement of the U. S. Medical and Hospital Services since May 1946, has been named special consultant to the New York State Hospital Study now being carried on at Columbia University under the direction of Associate Professor Eli Ginzberg, Ph.D.

**Celebrate Anniversary of Dr. Blackwell's Graduation.**—Hobart College, Geneva, at a special convocation January 23 celebrated the hundredth anniversary of the graduation of Elizabeth Blackwell, first woman to receive a degree of doctor of medicine. Citations were made to ten leading women doctors of the United States and Canada for their own achievements in their profession. Nominations for these citations were made by the deans of the class A medical colleges of the United States and Canada. The women cited are: Drs. Florence R. Sabin, Denver; Alice Hamilton, Hadlyme, Conn.; Helen B. Taussig, Baltimore; Martha May Eliot, Washington, D. C.; Gerty Cori, St. Louis; Priscilla White, Boston; Helen V. McLean, Randolph Center, Vt.; Margaret D. Craighill, Topeka, Kan.; Helen MacMurchy, Toronto, Canada, and Elise S. L'Esperance, New York.

### New York City

**Dr. Sonneborn to Give Harvey Lecture.**—Tracy M. Sonneborn, Ph.D., professor of zoology, Indiana University, Bloomington, will deliver the fifth Harvey Lecture of the current series at the New York Academy of Medicine February 17 on "Cellular Transformation."

**Tuberculosis Conference.**—The annual Conference of the New York Tuberculosis and Health Association will be held March 8 at the Hotel Statler. Authorities on various phases of tuberculosis work, social hygiene and health education will present papers. Election of officers of the Tuberculosis Sanatorium Conference of Metropolitan New York, which will meet simultaneously, also will be held.

**Forum on Problems of Deafness.**—The Otolaryngology Section of the New York Academy of Medicine will join the New York League for the Hard of Hearing February 16 in a public symposium at the New York Academy of Medicine, 8:15 p. m. Subjects under discussion include The Patient: Emotional Factors in Young and Old, Training the Child for Speech and Hearing, Guidance and Training of Parents, Tests and Testing, and Prevention, Management and Treatment.

**Fifty Years of Service.**—Five doctors, each of whom has practiced fifty years in the community, were honored at a banquet January 22, attended by the Board of Trustees of Lebanon Hospital. The doctors, all members of the hospital staff, are Henry Roth, honorary director of surgery; Abraham J. Rongy, attending obstetrician and gynecologist; Sidney V. Haas, pediatrician; Moses D. Lederman, consulting aural and laryngologic surgeon, and William Weinberger, attending physician.

**Increase City Payment to Tuberculosis Hospitals.**—The Board of Estimate has voted to increase the city's payment to hospitals treating tuberculosis patients from $5 to $7.50 a day, which will increase annual hospital income by $163,000. At the same time the board made available $501,775 for an additional three hundred beds for tuberculosis patients, one hundred to be made available to the Stony Wold Sanatorium in the Adirondack Mountains at the rate of $6.25 a day and two hundred allocated to general hospitals at the rate of $7.50 a day. This is expected to help ease the overcrowding in city institutions.

**Advanced Course in Rehabilitation Methods.**—A special advanced course in rehabilitation methods for physical therapists is to be conducted by the Institute of Rehabilitation and Physical Medicine of the New York University-Bellevue Medical Center in conjunction with the New York University School of Education. Instruction will be given under the supervision of Drs. Howard A. Rusk, George G. Deaver and Donald A. Covalt, all of New York University College of Medicine, and Miss Edith Buchwald and Miss Beth Addoms of the New York University School of Education. The first of the series of courses will run from February 9 to March 22 and April 4 to May 13. Information can be obtained by writing Miss Edith Buchwald, Director, Rehabilitation Courses for Physical Therapists, Institute of Rehabilitation and Physical Medicine, 325 East 38th Street, New York 16.

## NORTH DAKOTA

**License Limited Number of Displaced Physicians.**—Provisions for placement of a limited number of displaced physicians in North Dakota were made in Grand Forks January 8 by Dr. Olafur W. Johnson, Rugby, president of the North Dakota State Board of Medical Examiners. Dr. Johnson said that displaced physicians not to exceed eight per year for three consecutive years would be permitted to take the State Board Examinations for a temporary license after first serving a general internship for one year in North Dakota hospitals approved for that purpose. Dr. Johnson pointed out that inasmuch as the accredited social agencies which sponsor displaced persons are responsible for them until they have attained citizenship, the temporary licenses will be valid only in the community where the displaced physician has been located by the sponsoring agency. "When the displaced physician is granted his final citizenship," said Dr. Johnson, "he will be granted full license on review by the State Medical Board. In the case of these displaced physicians no records of medical education, medical attainment or credentials are available to help the board in their determination. The board nevertheless feels that as much as possible should be done to help out the worthy among these unfortunate persons. We think that with the supervision now provided the people in North Dakota may be safely protected, and the year's internship will provide a period of adjustment during which the displaced physician may learn the English language, American customs and refresh himself in the advancement in medical science as practiced in the United States."

## OHIO

**Dr. Upham Made Emeritus Member of Board.**—Dr. John H. J. Upham, Columbus, who served thirty-five years as a member of the Ohio State Medical Board, was named an emeritus member in December. Dr. Upham's fifth term expired in March 1948. Dr. Paul H. Charlton, Columbus, has been appointed to succeed him as active member. Dr. Charlton is an associate professor of surgery at the Ohio State University College of Medicine and a former president of the American Medical Association.

**Regional Blood Center at Columbus.**—The Columbus Regional Blood Center of the American Red Cross was opened December 7 at 30 East Town Street, the eighteenth center to be opened in the nation. It is fully equipped with laboratories in which the blood is tested, typed, processed and refrigerated. A bloodmobile unit staffed with a doctor and six nurses has started regular scheduled visits to towns in twenty counties in central Ohio. It is anticipated that thirty counties will participate in the program. Dr. John W. DeVore is physician-technical director of the center, which is staffed with twelve registered nurses, four medical technologists and three blood custodians.

## OKLAHOMA

**First Taylor Lecture.**—Dr. Herman L. Kretschmer, clinical professior of urology, University of Illinois College of Medicine, Chicago, delivered the first annual Charles B. Taylor Lecture on January 11, at the University of Oklahoma School of Medicine, Oklahoma City. This lectureship was established by Mrs. Sarah Edwards of Oklahoma City in memory of her late husband, Mr. R. J. Edwards, and honoring Dr. Charles B. Taylor, professor emeritus of urology of the school of medicine, where he has been a member of the faculty for the past twenty-eight years.

## TEXAS

**Crippled Children's Emergency Fund.**—El Katif Shrine of Galveston has established a Shriner Crippled Children's Emergency Fund at the University of Texas Medical Branch, Galveston, with a donation of $1,000. Established by a Negro organization, the fund is to be used for the benefit of crippled children without regard to race or religion. The fund will be administered by Dr. Arild E. Hansen, professor of pediatrics and director of the Child Health Program at the university.

**Fund Established at University.**—The H. H. Weinert Endowment Fund for Cardiovascular Research has been established at the University of Texas Medical Branch, Galveston, by members of the family of Mr. H. H. Weinert of Seguin, a former regent of the university. The endowment is for supporting the researches of Dr. George R. Herrmann, professor of medicine and director of the Cardiovascular Research Laboratory, on factors in the cause and control of arteriosclerosis. Contributions to the fund to date total more than $15,000.

**Annual Dallas Spring Clinical Conference.**—The Dallas Southern Clinical Society will hold its eighteenth annual Spring Clinical Conference March 15-17 with headquarters at the Hotel Adolphus and Baker Hotel, Dallas. Guest speakers will be presented in general assemblies, afternoon clinics, round table luncheon conferences, afternoon and evening symposiums and a clinical pathologic conference. The program is as follows:

Elexious T. Bell, Minneapolis, Primary Hypertension, Especially with Reference to Changes in the Kidneys.
A. Benson Cannon, New York, Treatment of Common Skin Diseases.
Richard B. Cattell, Boston, Management of Hyperthyroidism.
Lowell S. Goin, Los Angeles, Management of Leukemia.
T. Campbell Goodwin, Cooperstown, N. Y., Prevention and Treatment of Tuberculosis.
A. McGehee Harvey, Baltimore, Recent Advances in Medical Therapy.
Francis L. Lederer, Chicago, The Otolaryngologist Looks at the Tonsil Problem.
Robert M. McIver, Jacksonville, Fla., Backache—A Urologist's Viewpoint.
Julian M. Ruffin, Durham, N. C., Modern Management of Peptic Ulcer.
Herbert E. Schmitz, Chicago, Prolonged Labor.
Kenneth C. Swan, Portland, Ore., Contemporary Concepts of Corneal and Scleral Processes.
Nathan A. Womack, Iowa City, Diagnosis of Diseases of the Liver.

A registration fee of $20 covers all lectures, luncheons and the annual banquet.

## VIRGINIA

**Personal.**—Dr. Oscar R. Yates, Suffolk, was presented the annual Silver Beaver Award in December by the Old Dominion Area Council of Boy Scouts. He has served as chairman of the council health and safety committee and has participated in scouting for the last twenty years.

**Appoint Professor of Medicine.**—Dr. William Parson, former instructor in medicine at Tulane University of Louisiana School of Medicine, New Orleans, has been appointed professor of medicine at the University of Virginia Department of Medicine, Charlottesville, effective July 1. Dr. Parson is a graduate of Columbia University College of Physicians and Surgeons, New York, 1937, and was a research fellow at Johns Hopkins University in 1942 before being associated with Tulane University.

## WASHINGTON

**Plague-Infected Fleas.**—Under date of November 29, according to the U. S. Public Health Service, plague infection was reported proved in a pool of 43 fleas from 11 short-tailed meadow mice, Lagurus curtatus, trapped November 4 on the Bickelton road 16 miles southwest of Mabton, Yakima County, and in a pool of 88 fleas from 60 white-footed mice, Peromyscus maniculatus, trapped on the same date in the same locality.

## WEST VIRGINIA

**License Revoked.**—The Public Health Council has revoked the license of Dr. Jerome H. Toupkin of Whitesville to practice medicine in West Virginia because of his conviction on a felony charge.

**Submit Bill for Health Department Reorganization.**—A proposed bill for reorganization of the West Virginia Department of Health was approved at a recent meeting of the Council of the West Virginia State Medical Association meeting January 8. It provides for a state board of health to be composed of three physicians or surgeons, one dentist, one osteopathic physician, one pharmacist, one hospital representative and two representative citizens. The members would be appointed for staggered terms of one to nine years. Not more than five of the nine members could belong to the same political party. Not less than one or more than two members could be appointed from the same congressional district. The board would have powers similar to those now vested in the board of governors of West Virginia University, and would have supervision and control of the hospital proposed to be built in connection with the four year school of medicine and dentistry. The bill would provide for the biennial registration of doctors in accordance with the plan heretofore approved by the council. A medical licensing board to handle all matters relating to licensure to practice medicine in West Virginia would take the place of the present Public Health Council. Under the proposed bill, all state tuberculosis, mental and general hospitals, with the exception of the hospital planned in connection with the medical-dental school, would remain under the supervision of the board of control. The crippled children's division would remain in the department of public assistance.

## WISCONSIN

**Dr. Waters Retires.**—Dr. Ralph M. Waters voluntarily retired as professor of anesthesia in the University of Wisconsin Medical School January 1. Dr. Waters came to the university in 1926. In 1944 he was awarded the Hickman Medal by the Royal Society of Medicine of London, and in 1947 the King of Sweden conferred on him the Order of Vasa for training Swedish doctors at the Wisconsin General Hospital. In 1946 he was awarded the Cutter Medal of the Phi Rho Sigma Fraternity, and he was the first recipient of the Distinguished Service Award by the American Society of Anesthesia.

**Appointments to Marquette.**—Dr. Edward A. Bachhuber has been appointed assistant dean of Marquette University School of Medicine, Milwaukee. He will be in charge of the medical educational program for medical students and residents at the Milwaukee County institutions. The appointment follows a recently arranged affiliation between the Marquette University School of Medicine and the county institutions. Dr. F. Herbert Haessler has been appointed to a full time professorship in ophthalmology at the university. He is a graduate of Johns Hopkins University School of Medicine, Baltimore, 1916. The professorship has been established in memory of the late Dr. John L. Yates and his sister Carol M. Alice. Dr. Haessler will develop a graduate training program in ophthalmology.

## GENERAL

**National Cancer Control Month.**—The American Cancer Society will conduct its annual drive in April, which is to be "National Cancer Control Month." The society will seek $14,500,000 as the minimum goal. Charles F. Kettering, industrialist, who became cosponsor of the Sloan-Kettering Institute for Cancer Research, will direct the campaign.

**Scholarship in Lip Reading.**—A $100 scholarship is being offered in 1949 by the American Hearing Society, trustee of the Kenfield Memorial Fund. Applications will be considered from any prospective hard of hearing teacher of lip reading to hard of hearing adults who lives in the United States and who can meet the necessary requirements of education and experience. Applications from those who are teaching lip reading now cannot be considered. Applications must be filed between March 1 and May 1 with Miss Rose V. Feilbach, Teachers Committee, 817 14th Street, N.W., Washington 5, D. C.

**Prize for Essay on Thyroid Problems.**—The American Goiter Association again offers the Van Meter Prize Award of $300 for the best essay submitted concerning original work on problems related to the thyroid gland. The award will be made at the annual meeting of the association in Madison, Wis., May 26-28, providing essays of sufficient merit are presented in competition. The essays may cover either clinical or research investigations, should not exceed 3,000 words, and must be presented in English not later than March 15. Typewritten, double-spaced copy should be sent to the corresponding secretary, Dr. T. C. Davison, 207 Doctors Building, Atlanta 3, Georgia.

**Dr. Ferree Appointed to American Heart Association.**—Dr. John W. Ferree, New York, has been named director of the Public Health Division of the American Heart Association. He will direct the development of public health programs for the association and will assist local groups in expanding and maintaining effective cardiac services in communities throughout the United States. During the last two years Dr. Ferree has been executive director of the National Health Council in New York and, earlier, director of Educational Services for the American Social Hygiene Association. He is a graduate of the Indiana University School of Medicine, 1932, and from 1940 to 1942 was state health commissioner of Indiana. During the war he served as commander in charge of the Venereal Disease Section, Division of Preventive Medicine, Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

**National Research Council Enters Fight Against Alcoholism.**—At a special meeting the Research Council on Problems of Alcohol voted to turn over its research operations and assets to the National Research Council of Washington, D. C. It was also voted that the public informational and educational publications be turned over to the Division of Mental Hygiene, U. S. Public Health Service. Both national organizations have agreed to accept the pertinent assets and carry on the work of the council. During the past eleven years the Research Council on Problems of Alcohol, whose activities are now completed, has spearheaded in medical schools and other scientific institutions investigations into the causes and treatment of problem drinking. Under its leadership a number of state governments and communities have established medical care programs for problem drinkers. For the past several years Dr. Anton J. Carlson, Chicago, has been its president and scientific director.

**Research Needs in Rheumatic Diseases.**—The National Research Council Committee, appointed to survey research needs in rheumatic diseases, recently reported to the Arthritis and Rheumatism Foundation the need of at least $6,100,000 for research alone over the next five years. According to the report, about 7,500,000 Americans have arthritis or some other form of rheumatic disease. Seventeen physicians and scientists under the chairmanship of Dr. Walter Bauer of the Harvard Medical School, Boston, participated in the survey report. The five year program they recommended calls for $4,300,000 for the support of researches and $1,800,000 in research fellowships to train young investigators. The committee also recommended the following: research on "embryonic mesenchymal tissue"; specific clinical and physiologic problems of arthritis and rheumatic diseases as well as social, environmental and other public health factors bearing on them; the relation of germ and virus infection to the onset of rheumatoid arthritis and of rheumatic fever; studies of the blood and circulatory system aimed at checking osteoarthritis; hereditary factors in relation to these diseases, and emotional factors related to the development and persistence of arthritis. The Arthritis and Rheumatism Foundation, for which the report was prepared, has its offices at 535 Fifth Avenue, New York City, and is now trying to raise $2,000,000 for its first year program. Half of this money is to be devoted primarily to research, and the other half is being sought for local programs for better care and training.

**Scientific Assembly of Academy of General Practice.**—The first annual scientific assembly of the American Academy of General Practice will be held in Cincinnati at the Netherlands Plaza Hotel March 7-9, under the presidency of Dr. Paul A. Davis, Akron, Ohio. The program is as follows:

Walter C. Alvarez, Rochester, Minn., The Patient Who Is Always Tired and Nervous.
M. Edward Davis, Chicago, Management of the Placental Stage in the Prevention of Postpartum Hemorrhage.
John E. Dees, Durham, N. C., Bladder Irritation in the Female.
Charles A. Doan, Columbus, Ohio, Hypersplenic Syndromes: Their Recognition and Management.
Joseph A. Freiberg, Cincinnati, Some Facets of Low Back Pain.
Lowell S. Goin, Los Angeles, The General Practitioner and the Radiologist as a Cancer Finding Team.
Francis C. Grant, Philadelphia, Surgical Methods for the Relief of Intractable Pain.
Tinsley R. Harrison, Dallas, Texas, Types and Causes of Heart Failure.
Robert A. Kehoe, Cincinnati, General Medical Practice in Relation to Industrial Medicine.
John A. Kolmer, Philadelphia, Practical Applications of Synergistic and Additive Chemotherapy.
Karl A. Meyer, Chicago, Surgical Management of Massive Intestinal Hemorrhage.
Norman F. Miller, Ann Arbor, Mich., The Human Cervix in Health and Disease.
Francis D. Murphy, Milwaukee, So-Called Malignant Hypertension.
Franklin D. Murphy, Kansas City, The Medical School and Rural Health.
Walter J. Reich, Chicago, Practical Office Procedure in Gynecology.
Howard A. Rusk, New York, Role of the General Practitioner in Rehabilitation of the Patient with Chronic Disease.
Tom D. Spies, Birmingham, Ala., Vitamins in the Practice of Medicine.
Philip Thorek, Chicago, Intestinal Obstruction.
Herman G. Weiskotten, Syracuse, Medical Education and Its Relation to General Practice.
Paul A. Davis, Akron, Pitfalls in Occupational Disease Diagnosis to Be Avoided by the General Practitioner.

A guest registration fee of $5 will be charged. Officers to be installed at the close of the assembly are Elmer C. Texter, Detroit, president; Stanley R. Truman, Oakland, Calif., president elect; Jason P. Sanders, Shreveport, La., vice president; Mr. Mac F. Cahal, Kansas City, executive secretary, and Ulrich R. Bryner, Salt Lake City, treasurer.

## FOREIGN

**United Nations Nutritional Survey.**—The need for outside nutritional help and relief in six European countries is more acute than a year or two ago, according to a report compiled by Dr. Henry F. Helmholz, Rochester, Minn., and Johann Latsky for the International Children's Emergency Fund. The report covers a six month investigation of conditions in Austria, Czechoslovakia, Greece, Hungary, Italy and Rumania. In none of these countries, the report states, was the condition of the child population satisfactory. Conditions are attributed to three causes: lack of safe-quality domestic milk supplies; slaughter of dairy herds and the failure of food and animal-feeding crops as a result of previous droughts. All six countries are below recommended standards for adequate nutrition, and there is a general chronic shortage of foods of animal origin.

## LATIN AMERICA

**Latin American Medical Society.**—The Sociedade Paraense de Ginecologia e Obstetricia was established in Belem and Para cities, Brazil, on May 8, 1948, with temporary headquarters at the faculty of medicine of Belem. Dr. Orlando Bordallo, Belem, is the president of the society.

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# Marriages

Stanley A. Skillicorn, San Jose, Calif., to Miss Joan Patton of Long Beach, in Gilroy, recently.

Charles A. Jarvis, Ilion, N. Y., to Miss Louise Marie Wilson of Crescent City, Fla., in October.

Hiram Wilson Davis, Richmond, Va., to Miss Shirley Powers Davis of Atlanta, in November.

Eugene A. White, Boston, to Miss Virginia Holmes of Cambridge, N. Y., November 20.

Abraham Irving Friedman to Miss Helene Marion Bennett, both of New York, July 29.

Bruce R. Marshall, Bedford, Ohio, to Miss Florence Pope in Youngstown, October 14.

# Deaths

**William Coughlin Braislin,** New Canaan, Conn.; born in Burlington, N. J., in 1865; College of Physicians and Surgeons, medical department of Columbia College, New York, 1890; formerly on the faculty of the Long Island College of Medicine; specialist certified by the American Board of Otolaryngology; member of the American Medical Association, Medical Society of the State of New York, American Laryngological, Rhinological and Otological Society and the American Otological Society; fellow of the American College of Surgeons; on the advisory board of the Selective Service during World War I; for many years affiliated with the Brooklyn Eye and Ear Hospital; died in the Norwalk (Conn.) Hospital December 2, aged 83.

**Eugene Vernon Powell,** Waco, Texas; born in Galveston, Aug. 2, 1891; University of Texas School of Medicine, Galveston, 1914; member of the American Medical Association and the American Roentgen Ray Society; a charter member and past president of the Texas Radiological Society; past president of the Bell County Medical Society; specialist certified by the American Board of Radiology; at various times associated with Mount Sinai Hospital in New York, King's Daughters Hospital in Temple, Terrell Clinic, Fort Worth, Hillcrest and Providence hospitals in Waco; affiliated with the Veterans Administration Hospital; died October 18, aged 57, of coronary occlusion.

**John Milton Acton,** Danville, Ky.; Kentucky School of Medicine, Louisville, 1898; served during World War I; formerly health officer of Boyle and Garrard counties; on the staff of the Ephraim McDowell Hospital; died November 20, aged 72, of arteriosclerosis.

**Paul Allen,** Montclair, N. J.; New York Homeopathic Medical College and Hospital, New York, 1889; formerly on the faculty of his alma mater; died November 20, aged 85.

**Walter Garvin Aughenbaugh** ⊕ Pittsburgh; University of Pittsburgh School of Medicine, 1913; affiliated with St. John's General Hospital, where he died November 23, aged 59, of coronary occlusion.

**Wendell Lee Ball** ⊕ Pacific Grove, Calif.; University of Oregon Medical School, Portland, 1938; served during World War II; died November 14, aged 36.

**Moses Burette Barber,** Fredericktown, Mo.; Barnes Medical College, St. Louis, 1899; member of the American Medical Association; died in Ironton November 7, aged 79, of injuries received in an automobile accident.

**Horace Cleveland Bare** ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1901; on the courtesy staff of the Lankenau Hospital; died November 18, aged 70, of cerebral thrombosis.

**Alcimus H. Baskin,** Atlanta; Atlanta Medical College, 1892; formerly city councilman and police commissioner; died November 17, aged 79.

**Thaddeus Park Bell,** New Orleans; University of the South Medical Department, Sewanee, Tenn., 1900; died in Baptist Hospital November 24, aged 73, of coronary thrombosis with infarction.

**Charles Herbert Benson,** Bainbridge, N. Y.; Syracuse University College of Medicine, 1891; at one time medical superintendent of the Syracuse (N. Y.) Free Dispensary Service; died November 28, aged 83, of myocarditis, uremia and hypertrophy of the prostate.

**Russell Eldridge Blankinship Jr.,** Lynchburg, Va.; University of Virginia Department of Medicine, Charlottesville, 1948; served during World War II; intern at the U. S. Marine Hospital in Staten Island, N. Y., where he died November 28, aged 25.

**George Boody Sr.,** St. Paul; Northwestern University Medical School, Chicago, 1891; died November 11, aged 82.

**Oscar Daniel Brock,** London, Ky.; University of Louisville (Ky.) Medical Department, 1911; member of the American Medical Association; for many years mayor; died in the Marymount Hospital November 15, aged 65, of injuries received in an automobile accident.

**Erie Newell Brown,** Marengo, Iowa; State University of Iowa College of Medicine, Iowa City, 1888; served as health officer, president of the school board and on the board of the public library; died November 25, aged 85, of left ventricular cardiac failure.

**Sara Winifred Brown,** Washington, D. C.; Howard University College of Medicine, Washington, 1904; a trustee of Howard University; died November 12, aged 80, of a skull fracture received when struck by a bus.

**Samuel Collins Buchan,** Chicago; Bellevue Hospital Medical College, New York, 1877; died November 27, aged 97, of cerebral hemorrhage.

**Richard Lawrence Campbell** ⊕ East St. Louis, Ill.; Washington University School of Medicine, St. Louis, 1900; past president of the board of education and of the St. Clair County Medical Society; affiliated with St. Mary's Hospital, where he died November 24, aged 80, of carcinoma of the stomach.

**Arthur Clinton Carter,** South Dartmouth, Mass.; Tufts College Medical School, Boston, 1936; member of the American Medical Association; served as school physician; on the staffs of Sassaquin Sanatorium and St. Luke's Hospital in New Bedford, where he died November 26, aged 48, of coronary thrombosis.

**Michael Gregory Chadman** ⊕ Lancaster, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1921; certified by the National Board of Medical Examiners; for many years affiliated with St. Joseph's Hospital; died November 15, aged 51, of coronary occlusion.

**Theodore Charles Fegley** ⊕ Tremont, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1899; served during World War I; for many years county coroner; affiliated with Pottsville (Pa.) Hospital; died November 17, aged 72, of coronary thrombosis.

**Romeo Catlin Harner,** Howard, Kan.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; member of the American Medical Association; died November 4, aged 80.

**William J. Hatfield,** Topeka, Kan.; Medical College of Indiana, Indianapolis, 1890; member of the American Medical Association; died recently, aged 81, of cerebral hemorrhage.

**Earl Frederick Jamieson,** Brainerd, Minn.; College of Physicians and Surgeons, Boston, 1911; member of the American Medical Association; affiliated with St. Joseph's Hospital; died October 19, aged 61, of coronary occlusion.

**John Fletcher Lunsford,** Preston, Ga.; University of Georgia Medical Department, Augusta, 1901; member of the American Medical Association; affiliated with the Americus and Sumter County Hospital in Americus, where he died October 22, aged 71, of hypertensive cardiovascular disease.

**Donnell M. Pearson,** Louisiana, Mo.; Washington University School of Medicine, St. Louis, 1891; member of the American Medical Association; affiliated with Pike County Hospital; died October 12, aged 77, of coronary thrombosis.

**Charles D. Pettigrew,** Muncie, Ind.; Medical College of Indiana, Indianapolis, 1898; died October 27, aged 72, of coronary thrombosis.

**Louis De Laittre Pulsifer,** Mexico, N. Y.; Syracuse University College of Medicine, 1900; member of the American Medical Association; served on the school board, as health officer and as mayor; during World War II a member and medical examiner of the local draft board located at Pulaski; died October 26, aged 76, of coronary thrombosis and arteriosclerosis.

**Ernest B. Scholten** ⊕ Reading, Pa.; Christian-Albrechts-Universität Medizinische Fakultät, Kiel, Prussia, Germany, 1893; died in the Reading Hospital October 7, aged 81, of carcinoma of the rectum.

**Lawrence Simcox** ⊕ Gulfport, Fla.; University of Pennsylvania Department of Medicine, Philadelphia, 1897; died October 3, aged 78, of coronary occlusion.

**William Franklin Smith,** Chadbourn, N. C.; North Carolina Medical College, Davidson, 1904; member of the American Medical Association; served as chairman of the local school board; died November 11, aged 72, of heart disease.

**Wilfred Mark St. Georges,** Holyoke, Mass.; Baltimore University School of Medicine, 1893; retired school physician; served during World War I; affiliated with Holyoke City Hospital and Providence Hospital, where he died November 6, aged 77, of hypertrophy of the prostate with obstruction.

**William Norbury Vreeland,** Plainfield, N. J.; Columbia University College of Physicians and Surgeons, New York, 1901; served on the staff of the Fairmount Hospital in Jersey City; died in Muhlenberg Hospital, November 7, aged 71, of a ruptured abdominal aneurysm.

**Arthur Wellesley Wood,** Miami, Fla.; Atlanta School of Medicine, 1910; member of the American Medical Association; died November 21, aged 63, of acute coronary thrombosis.

**Gautier Conde Yancey,** Tuskegee, Ala.; University of Alabama School of Medicine, University, 1919; member of the American Medical Association; died November 14, aged 54, of cirrhosis of the liver.

# Foreign Letters

## LONDON

*(From Our Regular Correspondent)*

Jan. 3, 1949.

### The Hospitals Under the National Health Service

All the hospitals of the country, with some unimportant exceptions, have been taken over by the government under the National Health Service scheme. A report of the first half-year's work under the new system has been issued by the South West Metropolitan Regional Hospitals Board, which took over more than five hundred hospitals containing 68,000 beds. The board found that the transfer was smoother than was expected and claims that the services have already been improved in some respects. But there is a critical situation due to shortage of staff accommodation of every description and the public now tends to expect beds on demand in return for the compulsory contribution. The board has made contracts with 950 part time and 350 whole time specialists. Facing the shortage of specialists, which is not expected to be overcome in less than fifteen years, the Board hopes to gain by converting some part time into whole time specialists. The ultimate aim is that every patient will be in the charge of a specialist. Difficulties over lower medical appointments are likely to decrease through deferment of military service.

The mental service in the region has an equally difficult task. To remedy a shortage of psychiatrists the board has introduced a training scheme under which they will go through the hospital in a course lasting two years. Overcrowding of patients is partly due to the fact that medical superintendents of mental hospitals had no power to refuse cases. The special nature of the problem has been recognized by the board's giving each of the twenty-three mental hospitals its own management committee and decentralizing work as much as possible. The whole service still remains under the control of voluntary workers, and members of the original board still hold honorary appointments. This point is made for the assurance of the public that the hospitals have not passed under complete bureaucratic control. This gradualness and desire to hold on to the advantages of the past system of management by voluntary workers is characteristically English. Such a socialistic revolution in other countries probably would mean a complete break with the past.

### The Australian Government Defies the British Medical Association

The failure of the Australian Government to introduce a National Health Service, in consequence of the resistance of the British Medical Association, has been reported in previous letters to The Journal. But the government persists in its intention. The Minister of Health, Senator McKenna, has written to the president of the federal council of the association, stating that the government intends to put its scheme into operation within the limits of its constitutional power and not to alter its proposals on the points in dispute with the British Medical Association. He said that the government had exhausted every effort to obtain the cooperation of the British Medical Association, and that it did not intend its proposals to be further delayed or frustrated by the association. He rejected as without foundation suggestions that a national health service would involve government control of every aspect of medical practice. This may be true but does not exclude much control that the medical profession considers detrimental to the practice of medicine, as has occurred in Britain.

### The Prevalence of Tuberculosis

The Royal College of Physicians has published one of the most comprehensive investigations into the development and prevention of tuberculosis in young adults ever made. The disease accounts for more deaths between the ages of 15 and 24 in England and Wales than any other malady and for about half the deaths caused by all the diseases. The danger of exposure to infection in young adults is greater than is generally realized. Young women are more likely to suffer than young men, and the risk is more or less in proportion to the degree of exposure to infection. Measures recommended included the bringing under treatment as early as possible, provision of safe employment for chronic infective patients, mass roentgenography to discover unsuspected cases and freeing milk from the danger of spreading tuberculosis.

The National Association for the Prevention of Tuberculosis has also just issued its annual report, which shows that of 2,000,000 persons examined by mass roentgenography in the past year 95 per cent had normal chests. Only 4 per thousand had active pulmonary tuberculosis. One per thousand had bronchiectasis. The report suggests that each regional hospital board should have a permanent committee and a doctor of high clinical and administrative ability to coordinate a complete service for tuberculosis and chest diseases. Both reports complain of the long waiting lists for admission to sanatoriums and the consequent delay in admission.

### A Science Center To Be Established

The president of the Royal Society, Sir Robert Robinson, at the two hundred and eighty-sixth anniversary meeting, referred to the need for adequate accommodation for scientific societies and announced that it had been unanimously agreed that the institution of a scientific center would provide the best solution. The Royal Society could function as its heart. One of the schemes that had been approved by the Rutherford Memorial provided for a "Rutherford Hall" of noble design.

*The Soviet Persecution of Russian Biologists.*—The president then referred to an incident that "has rudely disturbed our peace of mind"—the report that eminent Russian biologists had been constrained to subscribe to interpretations of the data in the field of genetics which they had previously rejected. According to *Pravda*, "The Academy of Sciences forgot that the most important principle in science is the party principle." The society regretted that the Academy of Sciences of Moscow has broken off its long correspondence with them. The new conditions, it is hoped, will not seriously impede the advance of biologic science, for which such qualifications as "western" are as irrelevant as they would be for the multiplication table. No such direct attack on the freedom of science is likely to occur here. But conceivably it might take the more subtle form of control of the character and direction of our scientific work. There is immediate danger in the current depreciation of fundamental research, not of course absolutely, but relatively, in comparison with technologic applications. The president expressed hope that it would be the opinion of all the fellows that the Royal Society should take a leading part in upholding their ideals and in insisting on the role which the highest kind of disinterested investigation must play in the life of the community.

### Ophthalmologic Congress

The annual congress of the Ophthalmological Society will be held in London March 31-April 2. The subject for discussion will be Corneal Grafting. The opening speakers will be Dr. R. Townley Paton, New York; Prof. A. Franceschetti, Geneva; Prof. G. P. Sourdille, Nantes, and Mr. J. W. Tudor, Cardiff. Further particulars may be had from the hon. secretaries, 45 Lincoln's Inn Fields, London, W. C. 2.

### Congress of Obstetrics and Gynecology

The twelfth British Congress of Obstetrics and Gynecology will be held in London July 6-8, under the presidency of Sir Eardley Holland. The subjects for discussion include "Modern Caesarean Section," Dr. C. McIntosh Marshall; "Essential Hypertension in Pregnancy," Prof. G. W. Pickering and Prof.

F. J. Browne; "Modern Concepts in the Diagnosis, Treatment and Prognosis of Carcinoma of the Uterus," Dr. J. E. Ayre, Montreal, Prof. G. Strachan, A. Glucksmann and Dr. Joe Meigs, Boston, and "Maternal Mortality," Sir William Gilliatt. Further information may be had from Dr. A. J. Wrigley, hon. secretary, 58 Queen Anne St., London, W. 1.

## ITALY

*(From Our Regular Correspondent)*

FLORENCE, Dec. 15, 1948.

### National Congress of Internal Medicine

The Italian Association of Internal Medicine held its forty-ninth congress in Bologna October 18-21, contemporaneously with the congress of the Surgical Association.

Reports on the first subject, "Visceral Pain," were presented jointly with the Surgical Association and the Italian Obstetrical and Gynecologic Association.

Professor Lunedei, University of Florence, the speaker from the medical point of view, discussed the principles of the physiopathology of pain.

Professor Comolli, one of the speakers from the surgical point of view, analyzed abdominal pain, considering the pathways of transmission of pain in the various serous and visceral formations. Professor Mangione, the second speaker from the surgical point of view, analyzed the character of the elementary visceral pain of the esophagus, of the stomach and of the various enteric segments; he particularly considered surgical intervention as antalgic treatment of great actuality in the treatment of pain.

Professor Paroli, speaker from the obstetricogynecologic point of view, discussed the pathways of transmission of algogenic impulses of the female genitals and the neuromeric connections of the genital sphere.

A discussion followed the reports in which, among others, Professor Gasbarrini, medical clinic of the University of Bologna, participated.

For the second subject reported on, "The Pathology and Symptomatology of Hemoplasmopathies," the speaker was Professor Poli. He recalled that today the hemoplasmopathies represent a new phase in the study of the many disease processes which have their fundamental substrate in the changes of the protein constituents of the blood plasma. One has to deal with a peculiar localized disturbance in the liquid interstice of the blood, to which functions of highly vital importance are assigned normally. The occurrence of abnormal proteins in the blood serum presents one of the fundamentals of the general pathology of the hemoplasmopathies; it may be revealed by the study of the behavior of the crystalline precipitation, by the reaction to heat, by biologic variations and those of immunity and by the clinical constitution. Variations of the protein spectrum are of considerable importance, and so are the tests of colloidal lability, actually in use in the laboratory. In the problem of the plasmopathic disturbances, the speaker emphasized that an activation of the reticuloendothelial system associated with an increase in plasma cells may be considered always as the basis of those disorders. One may observe an increase in globulin among the protein fractions. The alterations of the proteinemic picture involve a modification of the functions transferred to the proteins, of the transport of some of the substances and of the maintenance of the oncotic pressure. There are also variations in the coagulation of the blood and sero-immune reactions. The elimination of the abnormal proteins from the excretory organs and the accumulation of proteins in proximity to plasmacellular proliferation are the direct consequences of these pathologic states.

Clinically, the hemoplasmopathies may be divided in primary, typical secondary and minor. One group of hemoplasmopathies has regard to the arthropathies and hepatopathies. Measles, leishmaniasis and sarcoidosis belong to the plasmopathies of secondary type. Among the minor forms there are the acute and chronic infectious diseases, acute articular rheumatism, some deficiency plasmopathies, some neoplasias, some endocrinopathies and hemopathies. On the basis of anatomic-pathologic and clinical studies the speaker sketched a new pathogenic concept of nephrosis, which he considers a true and peculiar primary hemoplasmopathy.

In his conclusions Professor Poli stated that the present systematization of the hemoplasmopathies must be considered as provisional and is definitely bound to undergo many changes. It nevertheless represents a useful plan for connecting various morbid processes which so far have not been tied together, and to which only clinical experience and profound biochemical research may give a definite orientation.

The third subject reported on was "Cephaleas." A report was presented by Professor Greppi, clinical physician of the University of Florence, who recalled the chief algogenic zones of the cephalic region and of the endocranium. He then discussed the play of the physico-chemico-humoral mechanisms which regulate the cerebral circulation, dwelling particularly on the cephalea from histamine, which serves as a basic test for many forms of cephalea, because the intensity of the phenomena released by histamine is such that it may be regulated exactly on a sensibility threshold.

## AUSTRALIA

*(From Our Own Correspondent)*

Jan. 4, 1949.

### National Health Service Act, 1948

The year 1949 promises to be vital for the future of medical practice in Australia. The government, when it was elected to power three years ago, promised to introduce a national medical scheme. The government's term ends this year, and the inception of a plan is a political necessity.

It will be remembered that the government introduced a "free medicine" plan last July, but over a period of six months, instead of between 10,000,000 and 20,000,000 free prescriptions being dispensed as was expected, only 20,000 were tendered in accordance with the formulary. This situation was due to two factors, opposition by the well organized profession and apathy on the part of the public.

Free medicine, then, having been a failure, the Health Minister, Senator McKenna, introduced into parliament November 28 the National Health Service Act 1948, the outstanding feature being the payment of half the doctor's fee. The amount would be paid direct to the doctor in accordance with a "prescribed schedule of fees chargeable by doctors who participate." This plan would also apply to dentists. Estimated yearly cost was £6,000,000 for medical benefit and £4,000,000 for dental.

The bill was only an enabling measure, giving power to begin such a scheme and "leaving details of the service and its administration to progressive development by regulations." The government did not contemplate, nor did the constitution permit, any nationalization of doctors, dentists or allied professions.

The bill enables the commonwealth to provide or arrange for medical and dental services, including general practitioners' service, consultant and specialist services, ophthalmic services, maternal and child health services, convalescent, after-care and nursing services and medical and dental services in universities, schools and colleges; establish and maintain hospitals, laboratories, health centers and clinics; make payments to assist research and provide training courses in medical or dental science; provide or assist in the provision of postgraduate training and scholarships in medicine and dentistry; establish and develop courses of training in nursing, dental hygiene, radi-

TEXAS: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

UTAH: *Examination.* Salt Lake City, July. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VIRGINIA: *Examination.* Richmond, June 17-18. *Reciprocity.* Richmond, June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.

WYOMING: *Examination.* Cheyenne, Feb. 7. Sec., Dr. Franklin D. Yoder, Cheyenne.

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* *Basic Science Certificate required.*

**BOARDS OF EXAMINERS IN THE BASIC SCIENCES**

ALASKA: Juneau, Feb. 21-26. Sec.-Treas., Dr. C. Earl Albrecht, Box *1931, Juneau.*

ARIZONA: *Examination.* Tucson, March 15. Sec., Dr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

COLORADO: *Examination.* Denver, Mar. 2-3. Sec., Dr. Esther B. Starks, *1459 Ogden St., Denver.*

CONNECTICUT: New Haven, Feb. 12. Exec. Asst., State Board of Healing Arts, Miss Mary G. Reynolds, 110 Whitney Ave., New Haven 10.

DISTRICT OF COLUMBIA: *Examination.* Washington, April 18-19. Sec., *Dr. George C. Ruhland, 4130 Municipal Bldg., East, Washington.*

FLORIDA: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

MINNESOTA: *Examination.* April, June and Oct. Sec.-Treas., *Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.*

OKLAHOMA: Spring of 1949. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: Portland, March 5 and June 18. Sec., Mr. Charles D. *Byrne, State Board of Higher Education, Eugene.*

RHODE ISLAND: *Examination.* Providence, Feb. 9. Chief, Mr. Thomas B. Casey, 366 State Office Building, Providence.

SOUTH DAKOTA: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St,. Yankton.

TENNESSEE: Memphis, March 21-22. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

WISCONSIN: Madison, April 2.. Milwaukee, June 4. Sec., Prof. W. H. Barber, *Ripon College, Ripon.*

# Medical Motion Pictures

## FILM REVIEW

**A Day in the Life of a Cerebral Palsied Child.** 16 mm., color, sound, 875 feet (1 reel), showing time thirty minutes. Prepared in 1948 under the supervision of Dr. Winthrop M. Phelps, Director, The Children's Rehabilitation Institute, Cockeysville, Md. Produced by Hudson Production, Los Angeles. Sponsored by and procurable on loan or purchase from The Information Services of the National Society for Crippled Children and Adults, 11 South LaSalle Street, Chicago 3.

This motion picture depicts the activities and problems of a boy with cerebral palsy. He is followed from his awakening in the morning through the day's work and play. Since the scene is laid in an institution for children with this affliction, many other cases are seen incidentally, and they exhibit various forms of the condition and various degrees of severity. The problems of dressing, eating, standing, walking, talking, writing, and undressing are taken up in turn. The film has an emotional impact as a result of the watching of the extraordinary amount of help required by the victims by their courage and by the resourcefulness of their attendants. It raises the hope that means for preventing this distressing disorder may soon be found. Emphasis is placed on the application of the methods of physical medicine and occupational therapy in cerebral palsy. It suggests, but does not answer, the question as to how much is accomplished by some of these methods. If money can be made available, something valuable could be learned by retaking pictures of these same children during at least the next five years. A better understanding of cerebral palsy by the public at large should lead to a concerted effort not only to aid present victims but to find means of prevention, and this film should contribute notably toward this end. In the beginning of the film it might have been better to utilize the footage by demonstrating examples of the cases discussed by the lecturer.

The film would be valuable for showing to physical therapists and occupational therapists, to physicians who deal with such children in private practice and corrective physical education personnel. It will also be useful in rousing medical students and nurses to a sense of the importance of this condition, which can not be appreciated simply on seeing such patients in clinics. If the technical terms were given further explanation, the film would have real value for parents of cerebral palsied children as well as lay groups interested in the welfare of such children. The photography and narration are excellent.

# Bureau of Legal Medicine and Legislation

## MEDICOLEGAL ABSTRACTS

**Workmen's Compensation Acts: Death of Employee During Company Sponsored Baseball Game.**—The plaintiff filed a claim for a compensation award by reason of the death of her husband during the course of his employment with the Crosley Corporation. A judgment of the trial court reversed an opinion of the Industrial Commission and allowed an award so the defendant appealed to the court of appeals of Ohio, Hamilton County.

The deceased was an employee of the Crosley Corporation and performed the duties of a guard. The corporation had adopted a recreation program for its employees in which provision was made for the playing of baseball games. Playing equipment was furnished by the corporation and the program was directed by a paid supervisor, who made arrangements for the forming of several teams of corporation employees, made the schedule of games and selected sites for playing. The players wore shirts prominently displaying the name of the corporation or enough thereof to identify them as Crosley employees. When the notice for enrolment of players was first posted, the deceased had sought to join one of the regular teams, but was dissuaded from doing so because he was older than the players composing the teams and also because his work as a guard interfered with the time schedule of the games. The deceased then formed a team of "Crosley Guards," so designated on the shirts worn by the players in his team. This was sufficient to identify the players as employees of the corporation, and spectators of the games knew that the players were all Crosley employees. The "Crosley Guards" were not entered in the main schedule of teams and were not a part of the regular league of Crosley teams, but they were furnished playing equipment by the corporation. There was no question but that their activity was sponsored by the corporation and was in the general purview of the recreational program for employees of the corporation, designed to promote the health and the general welfare of the participants, cultivate a friendly relationship with the corporation and incidentally advertise its existence to the public. During the last game in which the deceased played, he was running the bases when he was tagged out. He walked to the players' bench and, on being seated, immediately fell dead.

In 1929, the Industrial Commission, in view of the fact that so many employers encouraged their employees to engage in athletics, sometimes during and sometimes outside working hours, adopted the following resolution:

> Be it therefore resolved by the Industrial Commission of Ohio, that in all cases where the employer encourages the employees to engage in athletics, either during working hours, or outside of working hours, and supervises and directs, either directly or indirectly, such activities, meritorious claims for injuries to any such employees while so engaged will be recognized, the employers' risk and experience to be charged with such cases. In the event of any such employees, while so engaged, received extra compensation from the employer the same shall be included in the pay roll reports to this department.

The conclusion of the Industrial Commission was that decedent's death was not the result of an injury received in the course of and arising out of his employment.

The question then presented, said the court of appeals, is: Was the death of decedent due to an injury received in the course of his employment with the Crosley Corporation and did such injury arise out of such employment? In view of the facts previously recited, said the court of appeals, and the weight of authority involving similar situations, it seems that there is sufficient relationship in the activity of the deceased at the time of his death to his employment to justify the conclusion that the claimant is entitled to compensation under the constitution and statutes as well as the rule of the Industrial

Commission. It seems also apparent, the court concluded, that both employee and employer received considerations from this activity which was the direct outgrowth of a recreational program which was not only authorized by the corporation, but definitely sponsored by it and the means of its accomplishment furnished at the expense of the corporation. Accordingly, the judgment of the trial court granting an award to the plaintiff was affirmed.—*Ott v. Industrial Commission, 82 N. E. (2d) 137 (Ohio, 1948).*

**Extravagant Claims and Promotional Literature as Misbranding.**—The defendant was charged with introducing, or delivering for introduction, into interstate commerce misbranded drugs. He was tried without a jury and found guilty, and this judgment was affirmed on appeal (*United States v. Kordel*, 164 F. [2d] 913; J.A.M.A. **137**:408 [May 22] 1948). Accordingly the defendant appealed to the Supreme Court of the United States.

The defendant writes and lectures on health foods from information derived from studies in public and private libraries. Since 1941 he has been marketing his own health food products, which appear to be compounds of various vitamins, minerals and herbs. The alleged misbranding consisted of statements in circulars or pamphlets, distributed by the vendors of the products, relating to their efficacy. The defendant supplied these pamphlets as well as the products to the vendors. Some of the pamphlets were displayed in stores in which the defendant's products were on sale. Some of them were given away with the sale of the products; some were sold independently of the drugs, and some were mailed to customers by the vendors. The circulars or pamphlets involved were shipped separately from the drugs and at different times, both before and after the shipments of the drugs with which they were associated. The question whether the separate shipment of the literature saved the drugs from being misbranded within the meaning of the act, said the Supreme Court, presents the main issue in this case.

The federal food and drug act prohibits the introduction into interstate commerce of any drug that is adulterated or misbranded. It is misbranded, according to the Act, if its labeling is false or misleading in any particular, and the term "labeling" is defined to mean "all labels and other written, printed or graphic matter (1) upon any article or any of its containers or wrappers, or (2) accompanying such article."

In this case, said the Supreme Court, the drugs and the literature had a common origin and a common destination. The literature was used in the sale of the drugs. It explained their uses. Nowhere else was the purchaser advised how to use them. It constituted an essential supplement to the label attached to the package. Thus the products and the literature were interdependent, as the court of appeals observed. It would take an extremely narrow reading of the act, continued the Supreme Court, to hold that these drugs were not misbranded. A criminal law is not to be read expansively to include what is not plainly embraced within the language of the statute, but there is no canon against using common sense in reading a criminal law, so that strained and technical constructions do not defeat its purpose by creating exceptions from or loopholes in it. It would, indeed, create an obviously wide loophole to hold that these drugs would be misbranded if the literature had been shipped in the same container but not misbranded if the literature left in the next or in the preceding mail. One article or thing is accompanied with another when it supplements or explains it, in the manner that a committee report of the Congress accompanies a bill. No physical attachment one to the other is necessary.

The false and misleading literature in the present case was designed for use in the distribution and sale of the drug, continued the Supreme Court, and it was so used. The fact that it went in a different mail was wholly irrelevant, whether we judge the transaction by purpose or result. And to say that the prior or subsequent shipment of the literature disproves that it "is" misbranded when introduced into commerce within the meaning of the statute is to overlook the integrated nature of the transactions established in this case. Moreover, the fact that some of the booklets carried a selling price is immaterial on the facts shown here. As stated by the court of appeals, the booklets and drugs were nonetheless interdependent; they were parts of an integrated distribution program. The act cannot be circumvented by the easy device of a "sale" of the advertising matter where the advertising performs the function of labeling. Accordingly the judgment of the trial court and of the court of appeals was affirmed and the defendant was held guilty of a breach of the provisions of the federal food, drug and cosmetic act.—*Kordel v. United States, 69 S. Ct. 106 (1948).*

**Food and Drug Acts: Evidence of Misbranding of Device.**—This was a libel filed under the federal food, drug and cosmetic act seeking seizure of sixteen machines labeled "Sinuothermic." The libel alleged that the device was misbranded within the meaning of the act in that representations in a leaflet, entitled "The Road to Health," relative to the curative and therapeutic powers of the device in the diagnosis, cure, mitigation, treatment and prevention of disease were false and misleading. It charged that the leaflet had accompanied the device in interstate commerce. The respondent appeared as claimant of several of the devices. Judgment of the trial court in favor of the plaintiff was reversed by the court of appeals (*U. S. v. Urbuteit*, 164 F. [2] 245; J.A.M.A. **136**:947 [April 3] 1948) so the government appealed to the Supreme Court of the United States.

The respondent terms himself a naturopathic physician and conducts the Sinuothermic Institute in Tampa, Fla. The machines against which the libel was filed are electrical devices allegedly aiding in the diagnosis and cure of various diseases and physical disorders, such as cancer, diabetes, tuberculosis, arthritis and paralysis. The alleged cures effected through its use are described in the allegedly false and misleading leaflet, "The Road to Health," published by the respondent and distributed for use with the machines. The respondent shipped from Florida a number of these machines to one Kelsch, a former pupil of his who lives in Ohio. Kelsch used these machines in treating his patients, and, though he did not receive them as a merchant, he sold some to patients. As part of this transaction the respondent contracted to furnish Kelsch with a supply of leaflets, which were sent from Florida to Ohio at a different time than when the machines were forwarded. Kelsch used the leaflets to explain the machines to his patients. The leaflets seem to have followed the shipment of the machines. But as *Kordel v. United States* holds, that is immaterial where the advertising matter that was sent was designed to serve, and did in fact serve, the purposes of labeling. This machine bore only the words, U. S. Patent Sinuothermic Trade Mark. It was the leaflets that explained the usefulness of the device in the diagnosis, treatment and cure of various diseases.

The power to condemn, said the Supreme Court, is contained in section 304 (a) of the food and drug act and is confined to articles "adulterated or misbranded when introduced into or while in interstate commerce." We do not, however, read that provision as requiring the advertising matter to travel with the machine. The reasons of policy which argue against that in the case of criminal prosecutions are equally forcible when we come to libels. Moreover, the common sense of the matter is to view the interstate transaction in its entirety—the purpose of the advertising and its actual use. In this case it is plain to us, the court continued, that the movements of the machines and leaflets in interstate commerce were a single interrelated activity, not separate or isolated ones. The act is not concerned with the purification of the stream of commerce in the abstract. The problem is a practical one of consumer protection, not dialectics. The fact that the false literature leaves in a separate mail does not save the article from being misbranded. Where by functional standards the two transactions are integrated, the requirements are satisfied, though the mailings or shipments are at different times. Accordingly the judgment of the circuit court of appeals which was in favor of the respondent was reversed and the libel was granted.—*United States v. Urbuteit, 69 S. Ct. 112 (1948).*

# Current Medical Literature

## AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

### Alabama State Medical Assn. Journal, Montgomery

**18**:61-92 (Sept.) 1948

Psychosomatic Medicine. H. B. Gwynn.—p. 61.
Adequate Care of Poliomyelitis. R. L. Bennett.—p. 68.
Hyperinsulinism and Islet Cell Tumors: With Report of Case. R. F. Guthrie and G. C. Buck.—p. 73.

**18**:93-116 (Oct.) 1948

Some Considerations of Peritonitis. C. Lyons.—p. 93.
Some Medical Complications of Pregnancy. A. E. Thomas and J. W. Perry.—p. 98.
Treatment of Congenital Club Foot. S. R. Terhune.—p. 102.

### American Journal of Medical Sciences, Philadelphia

**216**:121-240 (Aug.) 1948

*Evaluation of Various Examinations Performed on Serous Fluids. S. K. Phillips and J. R. McDonald.—p. 121.
Use of Radioactive Iodine in Diagnosis of Thyroid Disease. S. Feitelberg, P. E. Kaunitz, L. R. Wasserman and S. B. Yohalem.—p. 129.
*Antigen Tracer Studies and Histologic Observations in Anaphylactic Shock in the Guinea Pig: Part I. S. Warren and F. J. Dixon.—p. 136.
Morphological Backgrounds of "Genuine Lipoid Nephrosis." E. Moschcowitz.—p. 146.
Clinical Uses of Intravenous Diphenhydramine Hydrochloride (Benadryl Hydrochloride). M. H. Rosenberg and L. S. Blumenthal.—p. 158.
Effects of Certain Dihydrogenated Alkoloids of Ergot in Hypertensive Patients. E. D. Freis, J. R. Stanton and R. W. Wilkins.—p. 163.
*Immediate Sequelae of Myocardial Infarction: Their Relation to Prognosis. A. Selzer.—p. 172.
Digitoxin Poisoning: Report of 30 Cases. N. Flaxman.—p. 179.
Multiple Myeloma: Report of Experience with Stilbamidine. R. L. Baker and R. L. Casterline.—p. 183.
Correlation Between the Cholecystogram and Secretin Test for Gall Bladder Function. W. J. Snape, M. H. F. Friedman and P. C. Swenson.—p. 188.
Pseudomonas Septicemia and Endocarditis: Report of Case. W. E. DeMuth Jr. and A. J. Rawson.—p. 195.
Further Clinical Observations on Use of Dibutoline, New Antispasmodic Drug. G. H. Marquardt, J. T. Case, G. M. Cummins Jr. and M. I. Grossman.—p. 203.
Progress and Development of Anesthesia in The United States. I. B. Taylor.—p. 212.
Ocular Changes Associated with Pheochromocytomas. R. W. Hollenhorst.—p. 226.

**Examinations of Serous Fluids.**—Phillips and McDonald studied one hundred and three specimens of fluid from 92 consecutive patients with ascites, pleural effusion or pericardial effusion who underwent paracentesis, thoracentesis, pericardial aspiration, peritoneoscopy or laparotomy. Specimens were centrifuged at 1,800 to 2,000 revolutions per minute for fifteen minutes, and the sediments obtained were smeared on slides and dried in the air at room temperature. Some of each set of slides were then fixed in 10 per cent solution of formaldehyde for twelve to twenty-four hours, stained with hematoxylin and eosin, and mounted with cover slips in Canada balsam. Other smears were stained with Wright and Giemsa stains in the usual manner for preparing blood smears. Fifty-three specimens of fluid were obtained in 46 cases in which a diagnosis of malignant disease had been made clinically on roentgenologic examination, biopsy or necropsy, but in only 34 cases, in which forty specimens were obtained, was there evidence that the tumor might have involved the serous surfaces. In 19 of the 34 cases a positive diagnosis of malignant disease could be made on the basis of the finding of malignant cells in the fluids. Absence of the characteristic cell did not rule out the diagnosis. The use of Wright and Giemsa stains in addition to hematoxylin and eosin was found to be of assistance in some cases because they revealed the intranuclear detail more clearly. A large cell pack suggested the presence of malignant disease with involvement of the serous surface, but a small cell pack was of no significance in diagnosis. Malignant disease can cause the formation of serous effusions without involvement of the serous surface by tumor cells.

**Antigen Tracer Studies in Anaphylactic Shock.**—Warren and Dixon point out that the location of the antigen-antibody reaction is one of the most disputed aspects of anaphylactic shock. By using an antigen labeled with radioactive iodine and employing tracer technics they have been able to locate significant antigen concentrations during anaphylactic shock. The finding of antigen localized in edematous bronchial fibrous tissue suggested their subsequent study to determine the relation of this localization to bronchial obstruction, which is such a striking feature in death of guinea pigs from anaphylactic shock. They studied the stages in the development as well as the final picture of bronchial obstruction during shock and also the bronchial obstruction produced by various pharmacologic agents acting on smooth muscle. They found that significant amounts of labeled antigen were picked up only by liver and lung during anaphylactic shock. The amount of antigen taken up and its histologic distribution in the liver were the same in sensitized and nonsensitized animals and therefore presumably not related to sensitivity. The affinity for antigen on the part of sensitized lungs in fatal shock was about twice that seen in controls and therefore presumably a function of the sensitivity. The increased amount of antigen taken up by the sensitized lungs was found in the edematous bronchial fibrous tissue. They were unable to confirm the generally accepted assumption that bronchial obstruction of anaphylactic shock results solely from contraction of bronchial smooth muscle. Only in the early stages of shock (within two minutes after the onset of respiratory distress) was there convincing morphologic evidence of smooth muscle contraction; and even in these early stages there was already some edema formation. In the terminal stages of shock, the smooth muscle did not appear contracted or otherwise abnormal. The bronchial edema which began to form during the early stages of shock became massive in the terminal stages and at that time appeared to be the most important factor in the production of bronchial obstruction. Since this edematous zone was the site of antigen localization, it seemed possible that the antigen-antibody reaction was related to the edema formation.

**Immediate Sequelae of Myocardial Infarction.**—According to Selzer, myocardial infarction remains one of the most unpredictable entities in clinical medicine. The reason for this is the multiplicity of factors influencing its course and immediate prognosis, for, in addition to the actual derangement of the circulation caused by myocardial infarction, the course of the disease is often altered by secondary complications. The immediate prognosis of acute myocardial infarction depends largely on the myocardial necrosis and its sequelae. Coronary artery disease is the usual initiating factor in obstructing the blood flow to a portion of the myocardium, but once heart muscle necrosis has developed the damage to the myocardium affects the course of the disease, regardless of whether or not there is progression of coronary arteriosclerosis. A series of 130 unselected cases of recent myocardial infarction found at necropsy was examined. In 35 patients myocardial infarction was a terminal event in otherwise seriously ill patients. The remaining 95 patients were apparently well prior to the onset of the myocardial infarction and were subjected to detailed analysis. The immediate cause of death in this group of 95 cases was: progressive circulatory failure, with or without shock, in 28 cases; sudden death due to arrhythmia in 24 cases; embolic phenomena in 15; cardiac rupture in 8 cases, and secondary coronary thrombosis in 5 cases. In the remaining 15 cases death was due to incidental complications not related to myocardial infarction. No significant correlation was found between the age of the patients, the degree of the coronary arteriosclerosis, the size of the infarction and the presence of myocardial scars and of cardiac hypertrophy on one hand, and the course, the duration of illness and the frequency of complications on the other hand. This is interpreted as indicating the adequacy of circulatory adjustment even in cases with extensive damage to the heart. The prognosis of acute myocardial infarction is unpredictable because the importance of cardiac insufficiency—the direct consequence of the damage to the myocardium—is outweighed by secondary complications. The important sequelae of myocardial infarction, which can be considered potentially preventable causes of death, are serious arrhythmia, thromboembolic phenomena and shock.

## American Journal of Pathology, Ann Arbor, Mich.

### 24:947-1136 (Sept.) 1948

*Gastric Cancer: Morphologic Factors in Five-Year Survival After Gastrectomy. P. E. Steiner, S. N. Maimon, W. L. Palmer and J. B. Kirsner.—p. 947.
Histologic Features of Carcinoma of Cardio-Esophageal Junction and Cardia. Elsie McPeak and S. Warren.—p. 971.
Pancreas in Uremia: Histopathologic Study. A. H. Baggenstoss. —p. 1003.
Skeletal Effects of Estrogenic Hormone in Growing Vitamin C-Depleted Guinea Pigs. M. Silberberg and Ruth Silberberg.—p. 1019.
Cytologic Studies with Phase Microscope. IV. Morphologic Changes Associated with Death of Cells in Vitro and in Vivo. H. U. Zollinger.—p. 1039.
Cytologic Changes in Thymic Glands Exposed in Vivo to X-Rays. R. Schrek.—p. 1055.
*Basic Patterns in Teratoid Tumors of Testis. H. D. Moon and R. L. Hullinghorst.—p. 1067.
*Pulmonary Adenomatosis: Report of 3 Cases. G. W. Drymalski, J. R. Thompson and H. C. Sweany.—p. 1083.
Atypical Amyloid Disease with Observations on New Silver Stain for Amyloid. L. S. King.—p. 1095.
Observations in Guinea Pigs Following Injection of Specific Hematopoietic Substances Derived from Urines of Human Leukemic Subjects. A. Sawitsky and L. M. Meyer.—p. 1117.

**Five Year Survival After Gastrectomy for Cancer.**—Steiner and his associates report on 30 cases in which the patients lived five years or longer after resection of a gastric cancer. All these conformed to the standard criteria for malignant tumors. A control group was used for comparison. It was composed of 30 cases of carcinoma of the stomach in which the patients had undergone resections similar to those of the five-year survivors, had survived operation, but had died of local recurrence or metastases within one year after operation. For a few comparisons with the five-year survivors, the entire clinical group of 576 cases of gastric cancer was used. Factors associated with five-year survival were sharp circumscription of the tumor, two special histologic types of cancer and a characteristic degeneration of tumor cells. Twenty-five of the five-year survivors would have been given a bad prognosis because they were in microscopic grades 3 and 4. Only 4 of the 30 five-year survivors would have been given a good prognosis by a combination of microscopic grades 1 and 2 and macroscopic types I and II. The error obviously would have been large by these methods. Five-year survival after gastrectomy for cancer may be due to cure by complete extirpation or to slow rate of recurrence. The relative importance of these two factors cannot be determined until the outcome is known. The chief defect in macroscopic typing as a method for estimating prognosis lies in its inability to detect the finer degrees of circumscription of the tumor. The chief defects in histologic grading are the failure to recognize the favorable course of a few special types of undifferentiated cancer and the importance of circumscription and retrogressive changes in the tumor.

**Basic Patterns in Teratoid Tumors of Testis.**—Moon and Hullinghorst report 125 tumors of the testis, of which 121 were of the teratoid type. Only three fundamentally distinct patterns, namely, seminoma, teratoma and carcinoma, could be demonstrated consistently in the group of teratoid tumors. These three patterns were encountered with about equal frequency. The seminoma pattern was encountered in 55, the teratoma pattern in 55 and the carcinoma pattern in 61 tumors. In 75 tumors a single pattern was present. There were 44 pure seminomas, 13 pure teratomas and 18 pure carcinomas. In 46 tumors various combinations of the three basic patterns were present. The teratoma-carcinoma combination was the most frequently observed, and this was seen in 35 cases. The seminoma-teratoma combination occurred in 3 cases, the seminoma-carcinoma combination in 4 cases and the seminoma-teratoma-carcinoma combination in 4 cases. The mean age for the entire group of patients with teratoid tumors was 29 years. There were 26 fatalities, and in these the seminoma pattern occurred three times, the teratoma pattern fourteen times and the carcinoma pattern twenty-one times. The definite tendency of the teratoma and carcinoma patterns to occur in the same tumor again was noted, and in 11 of the fatal cases this combination was present. Only 2 deaths occurred in the pure seminoma group and 2 deaths in the pure teratoma group, whereas 10 deaths occurred in the pure carcinoma group.

**Pulmonary Adenomatosis.**—Drymalski and his co-workers say that a multiple, nodular, bilateral tumor of the lungs was first described by Helly in 1907. Because of the preservation of the alveolar septums which were lined with cylindric cells and the absence of metastases, he termed the growth an adenoma, as distinguished from an alveolar cell carcinoma. Since Helly's report, 12 cases have been described in the literature, and to this number the authors add 3 more cases. Among the total of the 15 cases there were 9 women and 6 men. Their average age was 54 years. The duration of the disease has varied from several weeks to over two years. The 3 cases of pulmonary adenomatosis presented in this paper were detected among 57 cases of carcinoma of the lung. Case 1 of the 3 cases is the second recorded surgical specimen of this condition and indicates a possible bronchogenic origin for the disease. Case 2 illustrates malignant proliferation of the cells of the adenomatous process. The cuboidal epithelium lining the air sacs and the loss of normal pulmonary architecture in case 3 represent an unusual variety of adenomatosis of the lung. Representing about 5 per cent of all pulmonary tumors, adenomatosis of the lungs resembles the so-called alveolar cell carcinoma in all respects. Probably the result of nonspecific irritation, the hyperplastic reaction of pulmonary adenomatosis is aggressive and may develop all the characteristics of malignancy. There are no distinguishing clinical features of pulmonary adenomatosis.

## Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

### 60:293-442 (Sept.) 1948

Pneumoencephalography in Diagnosis of Cerebellar Atrophies: Report of 5 Cases. L. Uzman.—p. 293.
*Accuracy of Roentgen Determination of Activity of Minimal Pulmonary Tuberculosis. C. C. Birkelo and P. O. Rague.—p. 303.
Tuberculosis of the Stomach and Duodenum. H. W. Ostrum and W. Serber.—p. 315.
Tumors of Upper Third of Stomach. M. Malenchini and J. Roca. —p. 323.
Hydatid Disease and Its Roentgen Picture. P. M. Schlanger and Henriette Schlanger.—p. 331.
*Irradiation of Pituitary Tumors: Results in 50 Cases. H. D. Kerr. —p. 348.
Gastroscopic Picture in Post-Irradiation Gastritis. E. D. Palmer.—p. 360.
Cancer of Cervix Uteri: Review of 296 Cases, 1935-1944. J. F. Hynes. —p. 368.
Radon Treatment of Cancer of Cervix Uteri: Detailed Report of 137 Cases. F. E. Simpson and J. E. Breed.—p. 382.
Carcinoma of Cervix Uteri: Analysis of 790 Cases Treated Over Five Years Ago. L. A. Pomeroy.—p. 387.
Cancer of Cervix Uteri: Study of Five to Eleven Year End Results. W. E. Howes.—p. 389.
Tracheal Diverticula: Report of Case. G. W. Drymalski, J. R. Thompson and H. C. Sweany.—p. 403.
Hemangioma of Kidney: Its Roentgen Diagnosis. P. S. Friedman and L. Solis-Cohen.—p. 408.
Calcification in Obliterated Ductus Arteriosus of Infant: Verified Example Diagnosed Before Death: Case Report. W. J. Elliott and A. F. Childe.—p. 411.
Undistorted Vertical Projections of Head from Lateral and Postero-Anterior Roentgenograms. W. L. Wylie and W. A. Elsasser.—p. 414.

**Activity of Minimal Pulmonary Tuberculosis.**—According to Birkelo and Rague the photofluorogram is valuable in the solution of the twofold problem of tuberculosis control: finding the infective source for the purpose of isolating it and finding the early case at a stage amenable to therapeutic measures. Its introduction has raised new questions. Growing numbers of "positives" are being discovered with the result that sanatorium and hospital facilities threaten to be swamped unless criteria which are reliable, yet simple in application, are established as guide in the disposition of the newly discovered case. A negative reaction to a skin test is strong evidence that the lesion is not tuberculous. Those who feel that reactors with positive roentgenograms can then be divided into active and inactive, or even tuberculous and nontuberculous, categories on the basis of sputum examinations or gastric aspirations take too sanguine a view of the problem. Unless the samples are collected under observation there is always the possibility of deliberate substitution of sputum samples. Scheduling patients for a number of gastric aspirations presupposes a degree of enlightened cooperation not always encountered in patients. The authors outline the methods used at the Detroit Department of Public Health. They conclude that activity can be determined accurately by roentgen examination and more rapidly and economically than by bacteriologic methods. In a group of 699 cases of minimal tuberculosis followed for two to five years, activity was correctly determined from the first roentgenogram in 86.43 per cent. Success in such a program depends on the services of an experienced roentgenologist and the use of the large film. The photofluorogram should be used for screening only. Patients with minimal inactive pulmonary tuberculosis should be followed by roentgen examinations at three month intervals for two years from the time of discovery and at longer intervals for an indefinite period thereafter.

**Irradiation of Pituitary Tumors.**—Kerr reports 50 cases, 11 of which were of the acidophilic type, 1 the basophilic, 37 the chromophobic and 1 the mixed acidophilic and chromophobic. Irradiation should be used first in the treatment of pituitary tumors, and only if this fails should the patient be operated on. The method of irradiation used by Kerr differs from other present day technics only in that he does not give repeated courses but tries to deliver in one course the dose necessary to produce regression. Radiation is directed toward the sella turcica through four fields (two temporal, one frontal and one vertical). He uses 200 kilovolts, with a 1.95 mm. copper half-value layer, 50 cm. distance and a 5 cm. cone. One hundred roentgens are given to one field the first day in order to reduce to a minimum the chances of causing swelling with increased intracranial pressure and headache. If no reaction ensues, two fields are given 100 r each the second day and from then on 200 r are given to each of two fields per day. This is carried up to a total of 2,000 r per field (air dose). With the ordinary-sized calvarium, this delivers approximately 2,400 r into the pituitary fossa. Results of irradiation in 24 patients treated six years ago seem permanent. Observations on a total of 50 cases emphasize that irradiation is a satisfactory primary method of treatment. The good results are in the range of 70 per cent. The chromophobic tumors respond as well as the acidophilic. It is important to follow the results of treatment carefully for at least two months, particularly regarding the visual fields. If there is diminution of the fields at that time, the neurosurgeon should be called in consultation because the tumor is either cystic or otherwise radioresistant. Psychotic patients or patients with previous cerebral symptoms will probably not do well and may have their symptoms exaggerated. It is questionable whether they should be irradiated. There may possibly be occasional cerebral damage from irradiation, although this has not been definitely proved.

## American Practitioner, Philadelphia

### 3:65-130 (Oct.) 1948

Hypochromic Anemia. M. B. Strauss.—p. 65.
Management of Neurogenic Vesical Dysfunction. C. D. Creevy.—p. 71.
Emergency Psychotherapy in General Practice: Doctor and Patient: General Psychotherapeutic Considerations. W. C. Hulse.—p. 75.
*Treatment of Angina Pectoris by Surgical Production of Adhesive Pericarditis. S. A. Thompson.—p. 81.
Importance of Early Treatment of Respiratory Diseases and Their Complications in Potential Allergics. A. Sterling and B. S. Hollander.—p. 86.
*Bronchiectasis. A. L. Barach.—p. 89.
National Health Service Act of England and Wales. W. H. Cole and G. E. Burch.—p. 95.
Contributions to Clinical Electromyography, II Phenomena of Reciprocal Contraction of Symmetrical Muscles and Its Significance in Muscle-Reeducation. P. Liebesny and M. G. Blutstein.—p. 103.
Diagnosis in Primary Cancer of Bronchus. J. A. Crellin and T. F. Pugh.—p. 109.

**Treatment of Angina Pectoris.**—Thompson ligated the descending branch of the left coronary artery of dogs just below the circumflex branch, and death resulted in about 50 per cent of the animals. In a second group of dogs the same ligations were done, but these animals also had U.S.P. talc powder (hydrous magnesium silicate) instilled inside the pericardial sac to produce pericardial adhesions. In this group the mortality was 25 per cent. In a third group of dogs adhesive pericarditis was produced by the use of talc powder inside the pericardial sac, and two to three weeks later the same ligations were performed. In this group the mortality was zero. The talc powder inside the pericardial sac produces a decided foreign body reaction with resulting hyperemia of myocardium, epicardium and pericardium. It also produces adhesive pericarditis. This leads to the establishment of an extracardiac collateral circulation from the adherent pericardium and to the development of a collateral circulation in the heart muscle. The production of adhesive pericarditis by this method is in no way constrictive and does not add any extra burden to the work of the heart. Approximately 2 drachms by volume of dry sterile U.S.P. talc powder were distributed widely over the visceral pericardial surface inside the pericardial sac of 36 patients under general anesthesia, who were completely incapacitated preoperatively because of anginal pain. In determining the final results of the operation the relief of pain was considered of prime importance. Six patients died in the hospital after operation, 5 from coronary occlusion and 1 from a rupture through an unhealed infarct. Twenty-one patients showed definite improvement, and 8 of these patients consider themselves to be normal. Five patients were moderately improved and 4 patients still have the anginal pain but show some slight improvement in the exercise tolerance. The operation is simple and requires a short time for completion. Two principal contraindications are congestive failure and an active myocardial infarct. The selections of patients for operation depends on definite criteria. Not all patients with coronary artery disease and angina should be operated on. In view of the extreme degree of incapacity and the amount of myocardial pathologic change, the results of this form of treatment are very satisfactory.

**Bronchiectasis.**—According to Barach, the presence of bilateral, extensive bronchiectasis in a large number of patients prevents the use of surgical procedures. In the majority of these cases inhalation of 400,000 to 500,000 units of penicillin aerosol daily in successive four to six week courses has resulted in decided improvement in the patient's condition, with decrease in cough and expectoration and a striking diminution of the purulent quality of the sputum. Topical application with an aerosol of penicillin not only achieves a therapeutic blood level but also exercises a bacteriostatic influence on organisms developing on the bronchial mucous membrane. Favorable results have been observed in cases that have shown little or no benefit from systemic administration of the drug. Of fifty-nine courses of therapy in 35 patients with bronchiectasis there was marked improvement in 15, moderate in 22, slight in 14 and none in 8. Of seven courses of therapy in 5 patients with acute lung abscess, marked improvement occurred in 4, slight in 2 and no improvement in 1. Of four courses of therapy in 3 patients with chronic lung abscess, two resulted in marked improvement, one in slight improvement and one in no change. Of twenty-four courses of therapy in 16 patients with chronic bronchitis, improvement was pronounced in 12, moderate in 8, slight in 1 and absent in 3. Penicillin aerosol therapy constitutes an effective and practical technic which may be added to other forms of treatment in the management of patients with bronchopulmonary suppuration.

## Anesthesiology, New York

### 9:459-572 (Sept.) 1948

Role of Epinephrine in Analgesia. E. G. Gross, Helen Holland, H. R. Carter and Eunice M. Christensen.—p. 459.
Mental Suggestion as Aid in Anesthesia. B. B. Raginsky.—p. 472.
Effect of Procaine on Liver Function: Experimental and Clinical Study. J. J. Jacoby, J. M. Coon, M. P. Woolf and others.—p. 481.
Local Sequelae of Endotracheal Anesthesia: Observed by Examination of One-Hundred Patients. W. A. Donnelly, A. A. Grossman and F. M. Grem.—p. 490.
*Controlled Hypotension by Arterial Bleeding During Operation and Anesthesia. D. E. Hale.—p. 498.
Prolonging the Effects of Curare with Gelatin-Dextrose Mixtures: Preliminary Study. E. C. Heringman, J. Adriani and Beatrice B. Yager.—p. 506.
Experiences with Procaine Administered Intravenously. C. M. Barbour and R. M. Tovell.—p. 514.
Basal Anesthesia in Children Using Sodium Pentothal by Rectum. R. W. Burnap, E. A. Gain and E. H. Watts.—p. 524.
Mutual Cross Tolerance and Tolerance Studies with Pentobarbital and Delvinal Sodium in Rats. E. B. Carmichael.—p. 532.
Balanced Anesthesia for Thoracoplasty. C. L. Hebert.—p. 537.

**Controlled Hypotension by Arterial Bleeding.**—According to Hale, a fall in blood pressure and an increase in vasoconstriction account for the diminished bleeding following withdrawal of blood from the radial artery. This device for withdrawing blood before operations lessens surgical hemorrhage and expedites surgical intervention, at the end of which the blood is returned through the artery. The blood may be returned earlier in the event of severe decrease in blood pressure. This procedure of controlled induced hypotension was used in 50 patients, 25 women and 25 men between the ages of 14 and 60, on 24 of whom craniotomy and on 26 of whom the fenestration operation was performed. Preanesthetic medication consisted of pentobarbital, morphine sulfate and atropine sulfate, administered by mouth or rectum and by hypodermic injection within several hours before operation. Anesthesia was induced by intravenous injection of thiopental sodium supplemented by nitrous oxide and oxygen or by oxygen alone. The average patient weighed 156 pounds (70.8 Kg.); 1742.6 cc. (2.4 per cent of body weight) of blood was collected. The blood was withdrawn over a period of 29.4 minutes and remained outside the body for 25.7 minutes. The systolic blood pressure fell from a prebleeding level of 118.2 to a low of 75.9 mm. of mercury, this fall occurring within 13.3 minutes of the maximum bleeding. Of the blood withdrawn 500 cc. is permanently withheld from patients on whom the fenestration operation is performed. It was noted that these patients complained less of nausea, vertigo and headache, probably owing to the diminished postoperative edema incident to the mild dehydrating effect of the blood loss. The amount of heparin used as coagulant in the average case does not exceed 100 cc. of 0.01 per cent solution. This has been of no practical consequence in causing an increase in bleeding at the operative side. Electrocardiographic tracings were made on 3 patients before bloodletting, after the maximum amount of blood had been withdrawn and after infusion. Significant changes were not observed. Controlled induced hypotension is a valuable procedure for controlling hemorrhage in craniotomy and the fenestration operation.

## Archives of Dermatology and Syphilology, Chicago

### **57**:785-922 (May) 1948

Steroid Hormones: Metabolic Studies in Dermatomyositis, Lupus Erythematosus and Polymorphic Light-Sensitive Eruptions. J. H. Lamb, E. S. Lain, Corinne Keaty and A. Hellbaum.—p. 785.
*Spot Test for Syphilis: Using Modified Meinicke Antigen of Ford Robertson and Colquhoun. R. F. Lane.—p. 802.
Treatment of Localized Scleroderma (Morphea) with Bismuth Compound. J. M. Flood and J. H. Stokes.—p. 810.
Some Obscure and Paradoxic Problems of Syphilis. U. J. Wile.—p. 815.
Geriatric Nutritional Eczema. W. H. Guy, F. M. Jacob and W. B. Guy.—p. 822.
Experimental Study of Itch Stimuli in Animals. H. Koenigstein.—p. 828.
Treatment of Hyperhidrosis and Symmetric Lividities of Feet. J. G. Hopkins, A. B. Hillegas, R. B. Ledin and others.—p. 850.
*Granuloma Inguinale: Review of Literature and Report of 97 Cases, with a Note on Streptomycin Therapy. Lydia Marshak, R. L. Barton and T. J. Bauer.—p. 858.
Syphilis of Central Nervous System: Effect of Quinacrine Hydrochloride on Incidence of Convulsions. W. J. Welch, E. Bauman, P. Knowlton and R. W. Berliner.—p. 868.
*Systemic Reticuloendothelial Granuloma: Comparison of Letterer-Siwe Disease, Schüller-Christian Disease and Eosinophilic Granuloma. C. W. Laymon and J. J. Sevenants.—p. 873.
Pemphigus Vulgaris: Clinicoanatomic Study. Beatrice H. Kuhn and Lalla Iverson.—p. 891.
Ambulatory Treatment of Early Syphilis: Experimental Study with Report of Injection of Penicillin in Water-in-Oil Emulsion. A. Cohn, T. Rosenthal and I. Grunstein.—p. 900.
Chemistry of Palmar Sweat: VII. Discussion of Studies on Chloride, Urea, Glucose, Uric Acid, Ammonia Nitrogen and Creatinine. W. C. Lobitz Jr. and H. L. Mason.—p. 907.

**Spot Test for Syphilis.**—Lane says that for some time after its inception the Meinicke clarification test for syphilis was treated with suspicion on the grounds of nonspecificity, reactions supposedly taking place in malaria and tuberculosis. The Wassermann test likewise is not entirely specific, in that it sometimes produces positive results in the absence of syphilis in such conditions as pregnancy, malaria and infectious mononucleosis. The Meinicke is a colloidal test which employs a cardiac extract plus tolu balsam as the antigen. Solutions of sodium chloride constitute the electrolyte. The prepared antigen has a milky opaque appearance. Precipitation of the colloids takes place when the antigen is brought into contact with a syphilitic serum or cerebrospinal fluid, and clarification takes place because of sedimentation of the precipitated colloids. A normal serum or cerebrospinal fluid has no effect on the colloidal state; the mixture remains milky and opaque. The author's laboratory formerly used Meinicke's original antigen, but for some years he and his co-workers have been using the modified antigen of Ford Robertson and Colquhoun. The Meinicke test has the disadvantage that about eighteen hours of wait is involved. The modification employed by the author, which is a spot test, is free from this disadvantage. The reaction time is reduced to ten minutes. It has been used in parallel with the standard Meinicke technic and the Wassermann test in 858 specimens of serum and 142 of cerebrospinal fluid. The results with the rapid method (spot test) were in agreement with the Wassermann reaction in 97.5 per cent of the tests, while the results with the standard Meinicke test were in agreement with the Wassermann reactions in 98 per cent of cases. The results obtained from tests of cerebrospinal fluid are comparable with those for blood.

**Granuloma Inguinale.**—The shifts of population which accompanied the recent war resulted in a hitherto unprecedented number of cases of granuloma inguinale in the North. Thus, in three years, in the city of Chicago, where the disease was rare, 97 patients were treated at the Intensive Treatment Center. Marshak and her associates say that patients seen early in this study were treated on an outpatient schedule. Many of these discontinued their visits. All patients seen from March 1946 to November 1946 were hospitalized. There was a gratifying response to a 1 per cent solution of antimony potassium tartrate given intravenously in even the old neglected cases. The dose of the drug ranged from 1 to 10 cc., in ascending doses of 1 cc. per day gradually, and after the maximal dose was reached a decreasing dose, by 1 cc. per day, was administered for the next ten days. A total of 100 cc. of antimony potassium tartrate was given. Twenty-one of the 25 patients thus treated exhibited complete healing. In 1 of the patients in whom antimony drugs had been ineffective, streptomycin was employed with brilliant results. Results obtained in this patient and in 3 others demonstrate the efficacy of this drug in this disease. A small dosage of streptomycin was effective in healing the lesions.

**Systemic Reticuloendothelial Granuloma.**—Laymon and Sevenants show that there is considerable evidence that Letterer-Siwe disease, Schüller-Christian disease and eosinophilic granuloma represent variations of a basic disorder of the reticuloendothelial system. Letterer-Siwe disease, since it is rapidly fatal, usually does not show the lipidization of the lesions seen in the more protracted Schüller-Christian disease. Eosinophilic granuloma of bone shows lesions which clinically, roentgenologically and histologically cannot be distinguished from comparable lesions in Letterer-Siwe or Schüller-Christian disease. The absence of lipophagic foam cells in many of the lesions of Schüller-Christian disease and the fact that lipemia is hardly more constant in Schüller-Christian disease than in other types of reticuloendotheliosis cause doubt that Schüller-Christian disease is a primary disturbance of the lipid metabolism. Although at present it is impossible to draw conclusions concerning cutaneous eosinophilic granuloma, it would seem logical, because of the histologic similarity, tentatively to group this condition with the others under discussion. The cutaneous manifestations of the systemic reticuloendothelial granulomas are subject to considerable variation. In the Letterer-Siwe type there is a noteworthy tendency to cutaneous hemorrhage. Necrotic oral lesions have also been reported. In the Schüller-Christian type the commonest eruptions are the diffuse papular or seborrhea-like types. In 2 cases reported by the authors the eruptions simulated keratosis follicularis. Eosinophilic granuloma of the skin is characterized by nodules, plaques or tumefactions, which may be smooth, ulcerated or verrucous and may be located on various parts of the body.

## Arizona Medicine, Phoenix

### **5**:1-104 (Sept.) 1948

New Concepts in Application of Radium to Nasopharynx. J. S. Mikell.—p. 29.
Electro-Encephalography: Its Place in Neuro-Diagnosis. J. R. Green.—p. 38.
New Medium for Hysterosalpingography. M. J. Whitelaw.—p. 42.
Agenesis of Right Lung in Each of Identical Twins. Florence Yount.—p. 48.

## Blood, New York

### 3:967-1074 (Sept.) 1948

Nuclear Structure Versus Nuclear Pattern. O. P. Jones.—p. 967.
*Bone Marrow on Sternal Aspiration in Multiple Myeloma. E. D. Bayrd. —p. 987.
Unusual Remission after Radiophosphorus Therapy in Case of "Acute Plasma Cell Leukemia." E. D. Bayrd and B. E. Hall.—p. 1019.
Bartonella Bacilliformis Anemia (Oroyá Fever): Study of 30 Cases. W. E. Ricketts.—p. 1025.
Bone Marrow of Normal Guinea Pigs. A. Sawitsky and L. M. Meyer. —p. 1050.
Separation of Leukocytes from Whole Blood by Flotation on Gum Acacia. F. Spear.—p. 1055.

**Bone Marrow in Multiple Myeloma.**—Bayrd reports 71 cases of multiple myeloma treated at the Mayo Clinic. In 51 of these bone marrow studies were made by sternal aspiration. Pathologic cells in bone marrow smears in multiple myeloma resemble the plasma cell and vary from the very anaplastic and immature cell to the well differentiated and almost characteristic plasma cell. The feature which the "myeloma" cell shares with the plasma cell is the abundant, granular, basophilic cytoplasm which tends to be fragile and undergo the same degenerative changes in each, namely the formation of Russell bodies and vacuolization. Fairly frequently a perinuclear clear area or Hof is present and the nucleus tends to be eccentrically placed. Cytoplasmic extensions or pseudopodia may also be seen in either case, but they occur more often and more dramatically in instances of multiple myeloma. Multinucleated cells are commonly seen. Myeloma plasma cells often have a large clear nucleolus and a leptochromatic nucleus and exhibit a tendency to formation of isolated areas of condensed chromatin. Cytoplasmic extrusions, free cytoplasmic bodies, occasionally complete with Russell bodies and vacuoles, are almost universally present. All cases were of the plasma cell type; there was no exception. In these cases the myeloma plasma cell constituted from 2.5 to 96 per cent of the leukocytic elements present. It is suggested that all so-called types of multiple myeloma are merely variations in differentiation of this same cell. Anaplasia, hypernucleation and lack of plasma cell predominance in certain cases were diagnostic pitfalls. Additional evidence was adduced to confirm the reticuloendothelial origin of the myeloma plasma cell. Ten cases in which there was decided pleomorphism, often associated with frequent mitoses and immaturity, bore the poorest prognosis, and none of the patients in this group survived longer than twelve months after the onset of symptoms. Patients in whom uniform, mature-appearing plasma cells comprised almost the entire number of myeloma cells present survived forty-two to eighty-eight months after the onset of symptoms.

## California Medicine, San Francisco

### 69:179-246 (Sept.) 1948

Response of Articular Cartilage to Trauma, with Special Reference to Knee Joint. K. O. Haldeman and R. Soto-Hall.—p. 179.
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Role of Psychiatrist in Cardiovascular Disorders. A. Simon.—p. 185.
Anesthesia in Thoracic Surgical Operations. L. M. Taylor.—p. 190.
Preliminary Clinical Invesitgation of Tetraethylammonium Chloride, with Particular Reference to Disorders of Circulatory System. P. A. Shea, Patricia E. Dunklee, M. J. Tinney and W. W. Woods.—p. 193.
Q Fever in Central and Northern California. E. H. Lennette and G. Meiklejohn.—p.197.
Fatal Case of Q Fever in Southern California. D. C. Brown, L. A. Knight and W. L. Jellison.—p. 200.
Boxer's Bursitis. A. Waxman and H. Geshelm.—p. 203.
*Chronic Brucellosis: Follow-Up Study of 133 Patients Treated with Oxidized Vaccine. J. F. Griggs.—p. 205.
Mental Health in Public Health Program. K. A. Zimmerman.—p. 212.
Illustrated [illegible] Pedagogic Aid. L. S. Baer.—p. 216.
Prefronta [illegible] Report of 101 Cases. H. M. Elder, R. B. [illegible] H. Rixford.—p. 218.
Community Health Education in Relation to The Private Physician. M. Mills.—p. 221.
Intracranial Metastases of Primary Pulmonary Carcinoma: Diagnostic Difficulty. M. B. Shimkin.—p. 224.
Friedländer Bacillus Meningitis. B. Hyde and L. Hyde.—p. 229.
Carcinoma of Liver, Gallbladder, Extrahepatic Ducts, and Pancreas. W. F. Rowe and E. E. Larson.—p. 231.

**Chronic Brucellosis.**—Griggs reports a follow-up questionnaire returned by 133 of 222 patients who had begun treatment with oxidized Brucella abortus or suis vaccine one to six years previously. Of the 133 a total of 112 patients were improved, 18 were not improved and 3 were worse. Success in treatment appears to be correlated with certainty of diagnosis. Therapeutic factors other than vaccine did not appear to be of much importance in this series of patients. A study of the degree of improvement achieved showed that only about 14 per cent recovered completely, 28 per cent reported a "very good result," another 28 per cent a "good result" and 13 per cent only a fair improvement. Unfavorable prognostic factors in chronic brucellosis are extreme hypersensitivity to brucella substances, advanced age, long duration of the illness, inaccessible brucellar foci and other complications. About half of the patients manifested rather severe hypersensitization to brucella at some stage of their course. Avoidance of this manifestation during diagnosis and treatment is important to success. Self administration of the vaccine by patients is feasible after the first few weeks or months of the physician's instruction and demonstration. The rate of relapse varied between 22 and 49 per cent. This study supports the view that chronic brucellosis is a complicated disease entity which is difficult to prove and which is worthy of careful treatment with vaccine until a more effective agent is discovered.

## Delaware State Medical Journal, Wilmington

### 20:187-212 (Sept.) 1948

Cancer Program of State Board of Health: Report No. 2. J. W. Spies.—p. 187.
State Chest Clinics. L. D. Phillips.—p. 191.
Tuberculosis in Milford: Analysis of Milford School and Community X-Ray Surveys. C. R. Hayman.—p. 192.
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Delaware Crippled Children's Services. F. I. Hudson.—p. 197.
Good Posture for Our Children. Mary L. McCarthy.—p. 198.
You Wouldn't Believe It, Mr. Ripley! R. C. Beckett.—p. 199.
The Changing Family. C. A. Marshall.—p. 203.
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Low Sodium Diets in Hypertension. Mary T. Davenport.—p. 208.

## Diseases of Chest, Chicago

### 14:633-794 (Sept.-Oct.) 1948

*Cytologic Studies of Sputum and Bronchial Secretions in Primary Carcinoma of Lung. S. M. Farber, M. A. Benioff, J. K. Frost and others. —p. 633.
*Streptomycin and Tuberculosis. M. Albertal, L. L. Dobric and J. E. Rodrigue Olivares.—p. 665.
Streptomycin in Treatment of Human Tuberculosis. P. A. Bunn.—p 670.
Cooperative Study of Streptomycin in Tuberculosis. G. H. Seger.—p. 686.
Surgical Treatment of Residual Cavities Following Thoracoplasties for Tuberculosis. J. D. Murphy, P. D. Elrod, H. E. Walkup and E. R. Koontz.—p. 694.
Clinical Application of Angiocardiography. H. K. Taylor.—p. 707.
Meigs' Syndrome. I. F. Stein and R. Elson.—p. 722.
Rationale of Therapeutic Pneumoperitoneum; Physiological and Mechanical Considerations. N. L. Anderson.—p. 732.
The Tuberculin Test: Vital Factor in Tuberculosis Control. S. L. Cox. —p. 739.
Medical Aspects of Rehabilitation in Tuberculosis. O. Feinsilver.—p. 746.
Tuberculosis Problem in the Philippines. M. Canizares.—p. 759.
Streptomycin: Report on Its Present Use in Tuberculosis. M. Albertal and others.—p. 766.

**Cytologic Studies in Primary Carcinoma.**—Farber and his co-workers raised the sputum of patients with pathologic conditions of the lung from the bronchial passage by deep coughing. The smears were immersed immediately while still wet in a fixative solution consisting of equal parts of ether and 95 per cent ethyl alcohol. Papanicolaou's trichrome stain was used exclusively because of the transparency of the counterstain obtained by the use of solutions of a high alcohol content. Secretions obtained at bronchoscopy were smeared and fixed in the same manner as sputum. This method was employed for cytologic examination in a series of 1,755 specimens from 500 patients. It proved useful in suggesting, establishing or confirming the diagnosis of carcinoma of the lung. Malignant cells were demonstrated in 82 patients. Of these 82 patients, 57 have been proved to have carcinoma of the lung by tissue section. In the total series of 500 patients, 71 have been proved to have bronchogenic carcinoma, and in 57 (80 per cent) of these cases malignant cells were demonstrated. There is a close correlation of the results obtained by using either sputum or bronchial secretions. The use of sputum is more practical. Criteria for the cytologic diagnosis of cancer are discussed. The cytologic examination of the sputum is a valuable addition to the procedures for the diagnosis of carcinoma of the lung.

**Streptomycin and Tuberculosis.** — In Buenos Aires, Albertal and his co-workers treated 50 patients with pulmonary tuberculosis with 1 Gm. of streptomycin daily in five divided doses. The selection of the patients was not based entirely on the indications accepted for the use of streptomycin in the United States and England, but was partially governed by the ability of the patient to obtain this drug and by the demands of the patient's relatives for its use. Results showed that streptomycin treatment is indicated (1) for general therapeutic purposes in cases of acute, subacute or chronic hematogenous tuberculosis and for hematogenous lesions of the early exudative type; (2) for treatment of laryngeal and intestinal lesions regardless of the form or course of the associated pulmonary tuberculosis; (3) for restricted therapeutic purposes in any clinical form of pulmonary tuberculosis, for extrapulmonary lesions, for pulmonary tuberculosis complicated by diabetes mellitus or for cases of pulmonary tuberculosis and pregnancy. Because of the satisfactory results of preparatory treatment with streptomycin, collapse therapy may be feasible in cases in which it could not be considered previously because of the type of the lesion, the advanced stage of the disease and the precarious general condition of the patient.

## Geriatrics, Minneapolis

### 3:267-326 (Sept.-Oct.) 1948

*Quantitative Study of Diet in the Aged. H. A. Rafsky and B. Newman. —p. 267.
*Peripheral Arterial Disease in the Aged. S. S. Samuels.—p. 273.
Electric Shock Therapy in the Aging. H. W. Lovell.—p. 285.
Geriatric Rehabilitation. L. C. Cosin.—p. 294.
Surgical Risk in the Elderly Patient. J. D. Martin Jr.—p. 296.
Neurotic Struggle in Senescence. T. A. Watters.—p. 301.
Community Organization for Older Persons. E. H. Moore.—p. 306.

**Diet in the Aged.**—Rafsky and Newman reported in previous articles the tendency in aged persons to what may be termed "biochemical avitaminosis." By the term "biochemical avitaminosis" is meant laboratory findings of avitaminosis without clinical evidence of deficiency disease. This phenomenon was reported in studies on ascorbic acid, nicotinic acid and its relationship to porphyrinuria and thiamine and its relationship to gastric acidity, and in studies on several phases of carotene and vitamin A metabolism. The authors studied the dietary habits of apparently normal persons past the age of 65 years. The 65 subjects were divided into four groups and were observed for seven consecutive days each. A total of twenty-eight days was required for the entire experiment. The persons were given the usual diet served in the institution. They were permitted to eat as much as they desired. The authors conclude that the fact that laboratory evidence of nutritional deficiency exists in apparently normal aged persons cannot, on the basis of this study, be attributed to faulty dietetic intake or to a diet which is lacking in fat, carbyhydrate or proteins, or to a diet which produces insufficient caloric energy. Previous studies likewise stressed this fact. Since the state of "biochemical avitaminosis" which exists in aged persons cannot be explained by an inadequate diet, it is necessary to look elsewhere for the cause.

**Peripheral Arterial Disease in the Aged.**—Samuels feels that arterial insufficiency of the legs in aging and aged persons is an important factor in their lives, but that in many cases the family doctor attaches too little significance to this condition, which, in some instances, may be more damaging than similar disease of the coronary arteries. Frequently the onset of gangrene in elderly persons is the first intimation that they may have trouble with the circulation in the lower extremities. The most frequent method of onset of gangrene is mycotic infection of various parts of the feet. The usual foci of fungous infections in the feet are the interdigital spaces and any area of the foot where there is an accumulation of dead epithelium. These are usually found in corns, calluses and the eponychia around the toe nails. Careful investigation of the onset of gangrene in elderly persons will usually elicit a history of trauma induced by the patient rather than "spontaneous" occurrences, which is the usual idea. The author makes numerous therapeutic suggestions. Peripheral arterial disease in the aged is not a hopeless and helpless condition as previously thought. Fungicidal measures are an extremely important part of the prophylactic care. Intelligent management, rather than vasodilating procedures, is of paramount importance. Gangrene in the aged may be successfully treated by conservative methods. When amputation is indicated the operation should be above the knee by the simplest method. Elderly patients should be out of bed the day after operation.

## Journal of Allergy, St. Louis

### 19:281-352 (Sept.) 1948

Pharmacology of Drugs Used in Allergic Conditions. A. Gilman.—p. 281.
Pulmonary Function Studies in Bronchial Asthma. L. Tuft and G. I. Blumstein.—p. 288.
Studies in Contact Dermatitis: VII. Response of Healed Specific Dermatitis Sites to Stimulation with Another Contactant. M. Grolnick. —p. 298.
Thephorin: Experimental and Clinical Evaluation in Allergic States. L. H. Criep and T. H. Aaron.—p. 304.
Antistine, Neoantergan, Neohetramine, Trimeton, Antihistaminique RP-3277—Appraisal of Their Clinical Value. G. L. Waldbott and Mary I. Young.—p. 313.
Quantitative Studies in Skin Testing: II. Form of Dose-Response Curve Utilizing Quantitative Response. E. L. Becker and B. Z. Rappaport.—p. 317.
Id.: III. Assay of Direct Skin Reactivity of Ragweed Pollen Extracts by Endermal Testing Utilizing "All or None" Response. E. L. Becker and B. Z. Rappaport.—p. 329.
Milker's Eczema: Analysis of 42 Cases. S. Epstein.—p. 333.

## Journal of Clin. Endocrinology, Springfield, Ill.

### 8:705-812 (Sept.) 1948

*Biologic Effect of Irradiation by Radioactive Iodine. B. N. Skanse. —p. 707.
Collection of Radioactive Iodine by Human Fetal Thyroid. E. M. Chapman, G. W. Corner Jr., D. Robinson and R. D. Evans.—p. 717.
Dosimetric and Protective Considerations for Radioactive Iodine. J. J. Nickson.—p. 721.
Study of Histopathology and Physiologic Function of Thyroid Tumors, Using Radioactive Iodine and Radioautography. B. M. Dobyns and Beatrice Lennon.—p. 732.
Cancer of Thyroid in Thyroid Clinic. W. A. Meissner and F. H. Lahey. —p. 749.
Carcinoma ot Thyroid Gland, with Special Reference to Clinico-Pathologic Classification. G. Crile Jr., J. B. Hazard and R. S. Dinsmore.—p. 762.
*Appraisal of Goitrogens: Results of Treatment with Thiouracil, Propylthiouracil and Related Antithyroid Drugs. E. C. Bartels.—p. 766.
Certain Goiter Problems. A. L. Lockwood.—p. 776.
Experiences with Thyroidectomy in Thyroid Clinic. L. Goldman.—p 781.

**Biologic Effect of Irradiation by Radioactive Iodine.**—Skanse points out that tracer doses of radioactive isotopes have been used in biology and medicine with the assumption that their radiation does not change the physiology under investigation. The author has undertaken studies with radioactive iodine ($I^{131}$) in doses which have been used as "tracers" with two main objectives: (1) to determine the minimal amount of radioactive iodine which may interfere with the normal function of the thyroid and (2) to study the effects of irradiation by radioactive iodine on various known functions of the thyroid. Five day old cockerels were given injections of 0.5 unit of thyrotropic hormone for three consecutive days. Twenty-four hours after the last injection three groups were given subcutaneous injections of $I^{131}$ (containing 0.1 microgram sodium iodide as a carrier) in doses of 1, 10 and 50 microcuries, respectively. A fourth group received no radioactive iodine and was used as a control. It was found that during the first 96 hours no physiologic change took place in the thyroid at any dose level. The earliest radiation effect was observed in the 50 microcurie group 144 hours after administration of the isotope. This indicated that the thyroid does not retain a large dose of $I^{131}$ as well as it does a smaller one for any extended period. Thyroids of chicks which had received 1 millicurie of $I^{131}$ did not change in growth or iodine concentration. In animals which received 10 millicuries and 50 millicuries the normal growth of the thyroid was significantly inhibited. Iodine concentration was not altered in the animals which received 10 millicuries, but there was a significant decrease in concentration of thyroid iodine in the 50 millicurie group. All irradiated animals responded to thiouracil as measured by increase in thyroid weight twenty-six days after administration of $I^{131}$. However, thirty-eight days after they received $I^{131}$ there was no longer any response to thiouracil in the 50 millicurie group and in the 10 millicurie groups the response was not as great as in the nonirradiated controls. An investigation of the effect of $I^{131}$ on the thyroid's response to thyrotropic hormone showed that all irradiated animals responded to thyrotropic hormone as measured by increase in thyroid weight and loss of iodine sixteen days after administration of $I^{131}$. At the twenty-four day interval there was demonstrated a dissociation in response to thyrotropic hormone between the 10 millicurie and the 50 millicurie group. In the 10 millicurie group a loss of iodine was observed but no increase in thyroid weight. In the 50 millicurie group there was no effect on thyroid weight and the loss of iodine was minimal.

**Appraisal of Goitrogens.**—According to Bartels five years have now elapsed since Astwood's first report on the use of thiouracil in clinical hyperthyroidism. Since then reports are available on experiences with propylthiouracil and more recently with methylthiouracil. All observers agree that these agents alleviate the symptoms of hyperthyroidism when given in sufficient dose. That their action is specific in preventing the formation of organic iodine or thyroxin from inorganic iodine has been firmly established. The effective dose of thiouracil, propylthiouracil and methylthiouracil is 600 mg., 200 to 300 mg. and 200 to 300 mg., respectively. The incidence of toxic reactions is 9 per cent for thiouracil, 2 per cent for propylthiouracil and approximately 10 per cent for methylthiouracil. Investigators are in agreement as to the great benefit of these drugs as preoperative adjuvants. Difference of opinion existed regarding their value as substitutes for surgical treatment. The reported incidence of remissions after drug treatment shows wide variations. Some observers report remission in as high as 80 per cent of cases and others in as low as 20 per cent, with the remissions varying from a few months to two years. No satisfactory criteria exist to judge the duration of treatment required to produce a prolonged remission. When prolonged or maintenance treatment becomes necessary, then opinion differs as to the advantages of maintenance antithyroid over surgical treatment of hyperthyroidism. The disadvantages or objections to prolonged medical treatment are many. Most experienced clinicians are in accord that all adenomatous goiters should be removed, because of the risk of malignant disease and of pressure on other structures in the neck.

## Journal of Experimental Medicine, New York

**88**:267-388 (Sept.) 1948

Observations on Fever Caused by Bacterial Pyrogens. I. L. Bennett Jr. —p. 267.

Studies on Relationship of Pteroylglutamic Acid to Growth of Psittacosis Virus (Strain 6BC). H. R. Morgan.—p. 285.

Leptospirosis in Cattle. J. A. Baker and R. B. Little.—p. 295.

Epidemic Diarrheal Disease of Suckling Mice. F. S. Cheever and J. H. Mueller.—p. 309.

Protective Effect of Hyaluronidase and Type-Specific Anti-M Serum on Experimental Group A Streptococcus Infections in Mice. S. Rothbard. —p. 325.

Influenza Virus Infection in Hamster: Study of Inapparent Virus Infection and Virus Adaptation. W. F. Friedewald and E. W. Hook Jr. —p. 343.

Effect of Chick Embryo Extract on Growth and Morphology of Tubercle Bacilli. H. Bloch.—p. 355.

*Influence of Relative Humidity on Infectivity of Air-Borne Influenza A Virus (PR8 Strain). W. Lester Jr.—p. 361.

Human Antibody Response to Simultaneous Injection of Six Specific Polysaccarides of Pneumococcus. M. Heidelberger, C. M. MacLeod and Marie M. DiLapi.—p. 369.

*Production of Atheromatosis in Aorta of Bird by Administration of Diethyl-Stilbestrol. I. L. Chaikoff, S. Lindsay, F. W. Lorenz and C. Entenman.—p. 373.

**Influence of Humidity on Infectivity of Influenza Virus.**—Lester presents a study on the effect of varying relative humidities on the infectivity of air-borne influenza A virus, as shown by the ability of this virus to produce death or lesions in white mice under conditions in which the potency of the virus suspension, the dose of the virus and the physical environment could be carefully controlled. An amount of atomized virus suspension which produced a 100 per cent mortality rate in animals exposed at 30 and 80 per cent relative humidity, respectively, resulted in the death of only 22.5 per cent of mice at a humidity of 50 per cent. The humidities between these values gave intermediate results. The infectivity of the air-borne virus decreased so rapidly at a humidity of 50 per cent that it was impossible to secure a 100 per cent mortality rate in the exposed mice even by greatly increasing the dose of virus atomized. The use of a dialyzed virus suspension at a humidity of 50 per cent resulted in the death of all exposed mice. This suggested that the deleterious influence of humidity was related to the presence of sodium chloride in the atomized suspension. These findings closely resembled those obtained by Dunklin and Puck with pneumococci, streptococci and staphylococci, which would suggest that the factor responsible for the lethal effect of humidity is common to moist particles containing either the aforementioned bacteria or influenza A virus.

**Production of Atheromatosis with Diethylstilbestrol.**—Chaikoff and his co-workers say that avian lipid metabolism differs from mammalian in being under the control of ovarian hormones. In the bird actively engaged in egg laying there occurs a rise in the levels of fat, phospholipid and cholesterol of the blood; in this state total lipids of the blood may rise as high as 4,000 mg. per hundred cubic centimeters, as compared with values of 500 mg. in the nonlaying state. This rise in the various lipid constituents of the blood could be reproduced in the immature female or male bird by the injection of estrogenic compounds. In birds treated with diethylstilbestrol, values for plasma lipids as high as 10,000 mg. per hundred cubic centimeters have been observed. This distinctive feature of the lipid metabolism of the bird made possible the development of a new method for the study of experimental atherosclerosis. Atheromatosis could be induced in a bird by the administration of diethylstilbestrol. The diethylstilbestrol-induced lesion more closely resembled the spontaneously occurring one in the bird than did that produced by cholesterol feeding. But all three lesions were fundamentally similar, differing only in the amounts and proportions of the various lipid constituents present. The concentrations of cholesterol in plasma of the diethylstilbestrol-treated and cholesterol-fed birds were of the same order. Yet cholesterol constituted a greater proportion of the lipids deposited in the arterial wall of the cholesterol-fed than in that of the diethylstilbestrol-treated birds. This finding suggests that the cholesterol content of the vascular lesion depends not only on the absolute concentration of cholesterol in plasma, but also on the proportion of cholesterol to other lipid constituents in plasma.

## Journal of International College of Surgeons, Chicago

**11**:443-534 (Sept.-Oct.) 1948

*Surgical Consideration of Nonmalignant Achlorhydric Stomach. L. H. Appleby.—p. 443.

*Cancer of Rectum: Its Surgical Management without Colostomy and with Preservation of Internal and External Sphincter. H. E. Bacon and G. P. Giambalvo.—p. 452.

Pylephlebitis and Liver Abscesses Due to Appendicitis. Y. Soro.—p. 464.

Surgical Thoracic Tumors. M. Behrend and A. Behrend.—p. 469.

Nonfatal Bile Peritonitis Due to Common Duct Injury (Slow Leak). H. C. Saltzstein and V. B. Blaha.—p. 480.

New and Extended Radical Operation for Carcinoma of Uterus (Cervix and Fundus). H. Kirschbaum.—p. 485.

Primary Carcinoma of Gallbladder. L. J. Gariepy and L. W. Gardner. —p. 499.

Diverticulitis of Colon: Plea for Early Surgical Intervention. S. H. Babington.—p. 504.

Patent Urachus. E. J. Garvin.—p. 511.

Pancreatic Denervation and Pancreatomentopexy in Diabetes Mellitus. F. Fonseca and M. A. Manzanilla.—p. 520.

**Nonmalignant Achlorhydric Stomach.**—Appleby reports 32 patients, 15 men and 17 women between the ages of 22 and 69, 23 of whom had gastric ulcers and 9 had duodenal peptic ulcers in the presence of achlorhydria. These patients were all treated by acid replacement therapy for some time prior to resection, and with fair success from the standpoint of their anemic and hypoproteinemic standards, but replacement therapy proved ineffective with respect to the persistence of the ulcer and to the persistence of its activity. Peptic ulcer is not caused, nor caused to persist, by acid alone, and yet the presence of acid has much to do with the intensity of pain which is believed to be of muscular origin. The absence of severe pain symptoms incident to the acidity—i.e., the atypical symptom complex—causes many of these cases to go unrecognized. The acceptance of the diagnostic challenge of achlorhydria is strongly urged. Local resection rather than gastric resection is the operation of choice. There has been no operative mortality in these cases. Two additional female patients, aged 50 and 43 respectively, with achlorhydric stomach and resulting surgical complications are reported; intramural gastric abscess containing fish bones projecting into the lesser omental attachment and fish bone perforation of Meckel's diverticulum were demonstrated respectively on surgical intervention. These 2 cases indicate the dangers inherent in simple unrecognized anacid states and suggest the need for more careful dietetic screening of known cases of anacidity.

**Cancer of the Rectum.**—Bacon and Giambalvo report 640 patients, 352 men and 288 women between the ages of 17 and 85, with cancer of the anus, rectum and sigmoid colon. The highest incidence was in the age group between 51 and 60 years. Adenocarcinoma was demonstrated in 618 and epithelioma in 14 patients. The tumor was graded according to Broder's classification in 592 instances, with the largest group of 311 cases in grade II. Nodal metastasis occurred in 4 of 14 cases with involvement of one quarter the circumference, in 11 of 25 cases with involvement of one half the circumference, in 8 of 16 cases with the involvement of three fourths the circumference and in 16 of 25 cases with involvement of the entire circumference. The dictum that the more anaplastic the neoplasm the higher the incidence of lymphatic metastasis has been substantiated. Bleeding is the most constant and one of the first symptoms and was cited in 547 cases (85.6 per cent). Three hundred and forty-three patients (53.7 per cent) complained of constipation and recalled the increasing need of laxatives. A tendency toward diarrhea ensued in 202 patients (31.7 per cent). Sensation of unsatisfactory bowel movement was mentioned by 268 patients (41.9 per cent). Pain is not an early symptom of rectal cancer. Resection was instituted in 514 cases with 27 deaths, a mortality rate of 5.2 per cent. The technic of abdominoperineal proctosigmoidectomy, without colostomy and with preservation of both the external and the internal sphincter muscles, was employed in 344 procedures. In this group there were 17 deaths, a mortality of 4.9 per cent. The survival rate for five years and more was 52.6 per cent; the five year cure rate for grade A tumors, according to mural penetration, was 93.3 per cent. The local recurrence rate based on those patients on whom proctosigmoidectomy was performed five or more years ago was 17.9 per cent.

## Journal of Lab. and Clinical Medicine, St. Louis

**33**:1059-1196 (Sept.) 1948

Synthetic Diets: Their Use as Diagnostic Procedure in Allergic Disease. P. Rowe and J. M. Sheldon.—p. 1059.
Life Span of Megalocyte and Hemolytic Syndrome of Pernicious Anemia. K. Singer, J. C. King and S. Robin.—p. 1068.
Thrombopenic Purpura; Failure of Direct Blood Transfusion to Raise the Platelet Level. J. S. Lawrence, W. N. Valentine and W. S. Adams.—p. 1077.
Simple and Rapid Method for Demonstrating Sickling of Red Blood Cells: Use of Reducing Agents. G. A. Daland and W. B. Castle. —p. 1082.
Anti-A and Anti-B Isoagglutinin Titers in Rh-Immunized Pregnant Women. O. J. Brendemoen and C. Brendemoen.—p. 1089.
Factors in Use of Mercuric Bichloride for Biologic Studies with Especial Reference to Blood Counts. Edna H. Tompkins.—p. 1094.
Measurement of Electric Resistance of Human Blood; Use in Coagulation Studies and Cell Volume Determinations. R. L. Rosenthal and C. W. Tobias.—p. 1110.
*Effect of Choline, Methionine, and Low Fat Diet on Life Expectancy of Patients with Cirrhosis of Liver. L. Wade, L. Neudorff, H. Fritz and M. Karl.—p. 1123.
Distribution of Gold in Animal Body in Relation to Arthritis. J. J. Bertrand, H. Waine and C. A. Tobias.—p. 1133.
Effect of Nutrition on Tumor Response in Rous Chicken Sarcoma. P. A. Little, J. J. Oleson and Y. SubbaRow.—p. 1139.
Use of Antagonists of Pteroylglutamic Acid in Controlling Rous Chicken Sarcoma. P. A. Little, A. Sampath and Y. SubbaRow.—p. 1144.
Treatment of Typhoid Carrier State: Trial of 2 Chemotherapeutic Procedures. R. F. Korns and R. E. Trussell.—p. 1150.
Occurrence of Salmonella Blegdam in Louisiana. Rebecca A. Holt and Hazel Newton.—p. 1155.
Experimental Therapy of Generalized Torulosis in Rats with Streptomycin. E. M. Beck and H. H. Muntz.—p. 1159.
Nutrition and Experimental Diabetes: I. Diabetic Response of Weanling Rats to Intravenous Doses of Alloxan. G. V. Mann and F. J. Stare. —p. 1161.
Myelitis Following the Administration of Neoarsphenamine. D. Blankenhorn and H. G. Wolff.—p. 1165.

**Diet and Cirrhosis of Liver.**—In a previous communication Wade and his co-workers described a regimen for the treatment of cirrhosis of the liver which was based on two assumptions: (1) that fatty changes in the liver ordinarily precede the more characteristic anatomic lesions of cirrhosis, and (2) that fatty changes in the liver may be dietary in origin, especially in the alcoholic patient. The results attributed to the therapy were striking. Not all patients responded so dramatically, and spontaneous remissions occurred in the absence of therapy. Interpretation of the efficacy of the therapeutic regimen therefore had to await the study of an increased number of patients over a longer period of time. The present report summarizes the clinical experiences of the past five years, during which time some 224 patients with cirrhosis of the liver were studied. The fate of these patients is compared with that of a similar control group of patients treated in the same hospital under similar circumstances prior to the use of the present therapeutic regimen. The authors arrive at the conclusion that low fat diets supplemented by 1 to 8 Gm. of choline and 1 quart of skimmed milk daily (0.9 Gm. methionine) failed to influence the life span of patients with cirrhosis of the liver, even though these patients were much more closely supervised than the control series.

## Journal of Nat. Cancer Inst., Washington, D. C.

**9**:1-56 (Aug.) 1948. Partial Index

Configuration of Cobaltodihistidine and Oxy-Bis (Cobaltodihistidine). J. Z. Hearon.—p. 1.
Chemical Alteration of Polysaccharide from Serratia Marcescens. A. M. Seligman, M. J. Shear, J. Leiter and B. Sweet.—p. 13.
Pulmonary-Tumor Induction with Alkylated Urethans. C. D. Larsen. —p. 35.
Catheptic Activities of Tumors and Tissues of Tumor-Bearing Rats. Mary E. Maver, Thelma B. Dunn and Antoinette Greco.—p. 39.
Protein-Fractionation Studies of a Mouse Thymoma. E. C. Gjessing, T. N. Warren and C. Floyd.—p. 43.
Studies on Fractions of Mouse Thymoma: Effect of Diet and Inhibiting Agents on Lipid and Nucleic Acid Concentrations. T. N. Warren and A. Chanutin.—p. 47.
Influence of Age on Susceptibility of Mice to Development of Lymphoid Tumors After Irradiation. H. S. Kaplan.—p. 55.

## Journal of Nervous and Mental Disease, New York

**108**:181-270 (Sept.) 1948

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Case Study of a Combat Veteran. M. H. Adler.—p. 200.
Problems in Treatment of Neurotic Veteran. A. F. Valenstein.—p. 211.
Homosexual Activity: Relation of Degree and Role to Goodenough Test and to Cornell Selectee Index. R. A. Darke and G. A. Geil.—p. 217.
Psychopathologic Attitudes of Frustrated Previously Employed Mothers Toward Their Offspring. I. L. Berger.—p. 241.

## Journal of Neurosurgery, Springfield, Ill.

**5**:413-506 (Sept.) 1948

*Spinal Nerve Injury in Dorso-Lateral Protrusions of Lumbar Disks. K. Lindblom and B. Rexed.—p. 413.
Tumors of Septum Pellucidum. J. D. French and P. C. Bucy.—p. 433.
Clinical Experiences with Nerve Grafting. G. af Björkesten.—p. 450.
Curare in Spastic Paraplegia. I. S. Cooper and T. I. Hoen.—p. 464.
Acute Effects on Cerebral Circulation of Reduction of Increased Intracranial Pressure by Means of Intravenous Glucose or Ventricular Drainage. H. A. Shenkin, E. B. Spitz, F. C. Grant and S. S. Kety. —p. 466.
*Compression of Cervical Spinal Cord by Herniated Intervertebral Disks. P. C. Bucy, R. F. Heimburger and H. R. Oberhill.—p. 471.

**Spinal Nerve Injury in Protrusions of Lumbar Disks.**—Lindblom and Rexed made an anatomic study of the incidence of lumbar disk degenerations on cadavers. The specimens were taken from 160 patients of 14 to 87 years of age, regardless of clinical symptoms and cause of death. Among these, 60 nerve compressions were found, most of them by dorsolateral protrusions against the lateral part of the intervertebral canal, where the nerves with their ganglions cross the corresponding disk. The purpose of the present investigation was to determine the extent of nerve damage in the dorsolateral disk protrusion. In 17 cases of intervertebral disk protrusions where a macroscopic postmortem examination showed the presence of compression of spinal nerves and ganglions, 44 segments were examined histologically by serial sectioning of the damaged nerves and also of corresponding normal nerves. The compression was shown to have caused serious injury to the nervous structures. Diffuse degenerations mixed with regenerative processes of varying intensity were found, especially in the ventral root fibers. The spinal ganglion cells were often definitely deformed and atrophied by the pressure, and the spinal ganglion as a whole showed an increased amount of connective tissue and gross alterations of its internal structure. The severity of the nerve injury was proportional to the degree of macroscopic compression. Occasionally, osteoarthritic enlargement of the intervertebral joints was found to be an accessory factor in causing nerve damage. In 1 case an osteophyte was the only factor responsible for compression of the spinal ganglion. The authors describe the mechanism of compression and the spatial relationship between nerves and surrounding structures in the intervertebral canal. They also mention the relationship between the nerve injury by disk protrusions and certain arachnoidal proliferations around the spinal roots.

**Compression of Cervical Cord by Herniated Disk.**—Bucy and his associates present 4 cases of median herniations of the cervical intervertebral disks with compression of the spinal cord and stress that a herniated cervical intervertebral disk should be suspected whenever in a young or middle-aged man, who is otherwise healthy, either a Brown-Sequard syndrome develops or a spasticity of both legs with considerable difficulty in walking and in maintaining his balance. The absence of symptoms referable to the neck and upper extremities is of little importance. It may be difficult or impossible to differentiate a herniated disk from a tumor in the cervical part of the spinal cord. That is of little importance, as both would be treated surgically. The possibility of confusing a herniated cervical intervertebral disk with multiple sclerosis, primary lateral sclerosis or amyotrophic lateral sclerosis is a serious matter, as the herniated intervertebral disk can be removed and the neurologic symptoms relieved if the operation is performed promptly enough, whereas as yet there is no effective treatment for the degenerative diseases. Every patient suspected of suffering from a degenerative disease of the spinal cord should have a lumbar spinal puncture, and if there is any suspicion that there might be a herniated cervical intervertebral disk a myelogram with "pantopaque" (ethyl iodophenylundecylate) or iodized oil U.S.P. should be made. This rule should be followed even though there is no evidence of block on Queckenstedt's test and the spinal fluid is normal. Myelography carries with it little or no risk and, if the contrast medium is removed at the conclusion of the examination, as it can and should be, there should be no sequelae. These herniations are best removed transdurally through a bilateral laminectomy of at least two vertebrae. The results of such operations in early cases should be excellent, but in severe cases of long duration poor results have been reported.

### Journal Pharmacology & Exper. Therap., Baltimore

### 94:1-84 (Sept.) 1948. Partial Index

Potentiating Effect of Antihistaminic Drugs upon Sedative Action of Barbiturates. C. A. Winter.—p. 7.
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Fate of Acetanilide in Man. B. B. Brodie and J. Axelrod.—p. 29.
Comparison of Ouabain with Strophanthidin-3-Acetate by Intravenous Injection in Man. H. Gold, W. Modell, N. T. Kwit and others.—p. 39.
Studies on Purified Digitalis Glycosides: VI. Thevetin, Glycoside with Unusual Speed of Action in Man. W. Modell, N. T. Kwit, C. Dayrit and others.—p. 44.
Study of Pharmacologic Relationship Between Digitoxin and Histamine. A. Sjoerdsma and E. Kun.—p. 53.
*Synergistic Effect of Chlorguanide and Sulfadiazine Against Plasmodium Gallinaceum in Chick. J. Greenberg, Beverly L. Boyd and E. S. Josephson.—p. 60.
Study on Comparative Toxic Effects of Citric Acid and Its Sodium Salts. C. M. Gruber Jr. and W. A. Halbeisen.—p. 65.
*Ultraviolet Spectrophotometric Procedure for Determination of Barbiturates. L. R. Goldbaum.—p. 68.
Effect on Pain Threshold of N-Acetyl p-Aminophenol, Product Derived in Body from Acetanilide. F. B. Flinn and B. B. Brodie.—p. 76.
Mechanism of Convulsant Action of Strychnine; Lack of Atropine Antagonism. W. C. Wescoe and R. E. Green.—p. 78.

**Synergistic Effect of Chlorguanide and Sulfadiazine Against Plasmodium Gallinaceum.**—Greenberg and his co-workers say that sulfadiazine was the first compound proved to be a complete causal prophylactic against Plasmodium gallinaceum in the chick and has been used by many laboratories. Among the few compounds, other than the sulfonamide, found to have prophylactic action against P. gallinaceum is chlorguanide (1-[p-chlorophenyl]-5-isopropylbiguanide). Concurrent administration of chlorguanide and sulfadiazine was examined for prophylactic and suppressive activity against Plasmodium gallinaceum infections in the chick. It was found that the two drugs potentiate each other. The potentiation could not be accounted for by the concentrations of the drugs in the blood. The toxicity of the two drugs in combination was additive.

**Determination of Barbiturates.**—Goldbaum says that a procedure for the determination of thiopental based on its strong ultraviolet absorption spectrums was demonstrated to be highly specific, sensitive and quantitative. The present report is of a procedure that is applicable to the quantitative determination of barbiturates other than thiobarbiturates. The principle of the method is based on the extraction of the drug by an organic solvent and its removal from the organic solvent by extraction with alkali. The concentration of barbiturate in the alkaline solution is determined by the intensity of the absorption in the ultraviolet. For the optical measurements, the Beckman photoelectric quartz spectrophotometer with the standard 10 mm. square quartz absorption cells is used. The author stresses that this is a simple, rapid, highly specific procedure for the determination of barbiturates in blood and tissues, which is based on the characteristic ultraviolet absorption spectrums of the malonyl urea ring structure. The method is sensitive to 0.4 mg. per hundred cubic centimeters of blood and 1.0 mg. per hundred grams of tissue with an error of less than 10 per cent. This procedure is applicable to the clinical, pharmacologic and toxicologic investigation of barbiturates in blood and tissue.

### Michigan State Medical Society Journal, Lansing

### 47:945-1048 (Sept.) 1948

Roentgen Ray Treatment of Hemangiomata. H. G. Sichler.—p. 993.
Psychosomatic Aspects of Peptic Ulcer. L. A. Schwartz.—p. 995.
Short Transverse Incision for Congenital Pyloric Stenosis in Infants. E. G. Krieg.—p. 1000.
Intraosseous Infusions in Infants. E. C. Texter and D. H. Kaump.—p. 1002.
Michigan's Decentralized Resident Training Programs. C. F. Wilkinson Jr.—p. 1007.
Injury to Brachial Plexus Associated with Labor and Delivery: Case Report. W. C. Reid and J. E. Summers.—p. 1010.

### Minnesota Medicine, St. Paul

### 31:945-1048 (Sept.) 1948

National Health Legislation. J. H. Ball.—p. 977.
Teamwork in Conservation of Human Resources. M. Fishbein.—p. 981.
Epitheliomas of Lower Lip. J. B. Erich.—p. 983.
Survey of Cesarean Section in Minneapolis, Minnesota, in 1946. C. J. Ehrenberg.—p. 987.
Acute Coronary Insufficiency. H. J. Wolff.—p. 990.
Primary Idiopathic Segmental Infarction of Greater Omentum. C. S. Joss and J. H. Pratt.—p. 996.
Penicillin and Streptomycin Aerosol Therapy for Chronic Bronchiectasis. A. M. Olsen.—p. 1000.

### New England Journal of Medicine, Boston

### 239:453-492 (Sept. 23) 1948

Factors Favoring Successful Transmetatarsal Amputation in Diabetes. H. F. Root.—p. 453.
*Bronchial Adenoma. C. R. Souders and J. W. Kingsley Jr.—p. 459.
Psychiatry in General Hospital of Small City. S. M. Tarnower.—p. 466.
Giant Ovarian Cyst in Newborn Infant. W. I. Neikirk and H. W. Hudson Jr.—p. 468.
Methemoglobinemia and Sulfhemoglobinemia. C. A. Finch.—p. 470.
Recent Coronary Thrombosis. Recent Myocardial Infarction. Mural Thrombi of Right Ventricle and Left Auricle. Recent and Old Pulmonary Infarcts.—p. 478.
Lung Abscess.—p. 482.

**Bronchial Adenoma.**—Souders and Kingsley say that although bronchial adenoma was first recognized sixty-five years ago, it received little mention until recently. The recent advances in thoracic surgery have broadened the therapeutic approach to these tumors, as well as to other types of pulmonary lesions. The authors review the literature and present their own observations on 15 cases of bronchial adenoma, which were detected among 217 histologically proved primary lung tumors encountered at the Lahey Clinic since 1930. This amounts to an incidence of 6.9 per cent. Adenomas can usually be visualized bronchoscopically, and their characteristic appearance in most cases serves to differentiate them from carcinoma. Bronchial adenoma is a potentially malignant tumor, but the malignancy is of a low grade. Sixty per cent of bronchial adenomas occurred in patients less than 40 years of age. The incidence was slightly greater in female patients. A history of chronic cough, hemoptysis and repeated pulmonary infections, or symptoms of atelectasis, localized wheeze, obstructive emphysema or unilateral bronchiectasis are indications for bronchoscopy on a suspicion of adenoma. Inasmuch as surgical resection removes the infected lung tissue as well as the entire tumor and prevents malignant degeneration, it is the treatment of choice. Local removal may suffice for pedunculated adenomas without extrabronchial entension. The possibility of recurrence necessitates repeated bronchoscopic examinations.

### **239**:493-530 (Sept. 30) 1948

*Chronic Subdural Hematoma: Expansion of Compressed Cerebral Hemisphere and Relief of Hypotension by Spinal Injection of Physiologic Saline Solution. A. A. LaLonde and W. J. Gardner.—p. 493.
Streptomycin in Treatment of Bacterial Endocarditis: Report of 2 Cases. N. L. Cressy, W. J. Lahey and P. Kunkel.—p. 497.
Carcinoma of Rectum. F. S. Hopkins and R. C. Tate.—p. 501.
Viral Hepatitis. S. S. Gellis and C. A. Janeway.—p. 503.
Congenital Cyst of Liver.—p. 517.
Postatrophic Type of Cirrhosis of Liver. Adenoma of Liver. Esophageal Varices with Rupture.—p. 519.

**Chronic Subdural Hematoma: Relief of Hypotension.**—LaLonde and Gardner call attention to the fact that failure of the compressed hemisphere to expand after evacuation of a subdural hematoma is associated with hypotension of cerebrospinal fluid and may be a grave prognostic sign. The symptoms of intracranial hypotension may simulate those of intracranial hypertension. Why the hemisphere fails to expand or why the intracranial pressure remains subnormal is not known, but the authors have found that both conditions respond favorably to the intraspinal injection of isotonic sodium chloride solution. The presence or absence of the hematoma membrane does not affect the syndrome; removal of the membrane is not necessary. Expansion was accomplished by intraspinal injection of saline solution in 5 cases and by intraventricular injection in 2 cases. The volume of fluid introduced at a single injection varied from 50 to 220 cc. In addition to the 7 cases of subdural hematoma in which the compressed hemisphere failed to expand spontaneously, this procedure was employed in 2 cases of intracranial hypotension following operation for other conditions. This series of cases indicates that failure of expansion of the compressed hemisphere is more common in elderly patients who do not have increased intracranial pressure before operation. Expansion of the compressed hemisphere decreases or abolishes the subdural dead space, restores the brain to a more normal anatomic and physiologic state and obviates the need for drainage of the subdural space.

## New Jersey Medical Society Journal, Trenton

### **45**:427-468 (Sept.) 1948

Surgery of Malignant Disease of Laryngopharynx. H. B. Orton.—p. 430.
Management of Pruritus Ani. I. G. Larkey.—p. 436.
Philosophy and Meaning of Reorganization Plan for State Department of Health. D. Bergsma.—p. 439.
Unusual Nail Shedding Due to Nail Polish Base Coat. I. Shapiro.—p. 442.
Infectious Hepatitis. A. G. Markel.—p. 443.
*Steroid Hormones in Extrapancreatic Diabetes. W. H. Stoner.—p. 447.
Local Anesthesia in Obstetrics. J. R. Fiorello.—p. 452.
Medical Management of Essential Hypertension. L. M. Walker.—p. 454.
Para-Typhoid Complicated by Toxico-Derma and Jaundice. M. Braitman and J. A. Riese.—p. 457.

**Steroid Hormones in Diabetes.**—Stoner points out that diabetes mellitus may exist without actual disease of the pancreas and that various hormones are involved in the utilization of carbohydrates. All the steroid hormones used clinically (estrogens, androgens, progestin and the adrenocortical hormones) have been reported to influence carbohydrate metabolism. All these steroids are derivatives of cyclopentenophenanthrene. After briefly discussing their chemistry he reviews the clinical and physiologic data concerning the effects of the various steroid hormones on carbohydrate metabolism. The steroid hormones most used in therapy of diabetes mellitus are the estrogens, the androgens and certain adrenocortical substances. The author shows that with due consideration to their contraindications these steroid hormones are useful adjuncts in the therapy of selected patients, particularly the juvenile and the climacteric diabetic found to be difficult to control with insulin alone.

## New Orleans Medical and Surgical Journal

### **101**:97-140 (Sept) 1948

Few of the Important Contributions in the Past to Renal Physiology. R. L. Meiers.—p. 97.
*Value of Cytologic Smear in Diagnosis of Cancer. Ruth M. Shushan.—p. 108.
Encephalomyelitis, Eastern Type, in Louisiana. E. P. Flower.—p. 112.
Choice of Method of Treatment of Psychiatric Patients. S. Barkoff.—p. 114.
Psychiatric Emergencies. M. E. Johnson.—p. 117.
Electroshock Therapy. C. E. Strum.—p. 122.
Genetics and Cancer. W. J. Burdette.—p. 124.
Health Units for Louisiana. W. L. Treuting.—p. 129.

**Cytologic Smear in Diagnosis of Cancer.**—According to Shushan the cytologic smear has several limitations as a general diagnostic procedure. First, as its name implies, it is applicable only to those regions of the body which produce material from which a smear can be made. Second, diagnoses must be made from the characteristics of desquamated cells and groups of cells without actually seeing the invasion of tissue by these malignant cells. The advantages of the method are numerous: It is simple to obtain material; hospitalization is not necessary, and the smear can be repeated as often as necessary and is therefore excellent for the follow-up of suspected cases. The smear is an excellent method for following cases after operation or radiation. It often detects carcinoma in situ before the appearance of symptoms or lesions, and is often positive before the results of any other test are diagnostic. The author concludes that the cytologic smear is no substitute for older methods of diagnosis. It is a new tool to be used with other procedures in the fight against cancer.

## North Carolina Medical Journal, Winston-Salem

### **9**:367-434 (Aug.) 1948

Physical Methods of Treatment in Psychiatry and Implications to General Medicine. W. Sargant.—p. 367.
Pathogenesis, Diagnosis and Treatment of Acute Phase of Poliomyelitis. W. F. Friedewald.—p. 371.

### **9**:435-494 (Sept.) 1948

SYMPOSIUM ON GENERAL PRACTICE

Sad Plight of General Practitioner. G. O. Moss.—p. 435.
Problems of Rural Practice. G. F. Bond.—p. 438.
Role of General Practitioner in Program of Adequate Medical Care. J. S. Brewer.—p. 442.
Advantages of Membership in American Academy of General Practice. F. M. Houser.—p. 445.
*Epileptic Seizures Easily Confused with Functional Mental Disorders. R. L. Masland.—p. 448.
Place of BCG Vaccination in Tuberculosis Program. H. S. Willis.—p. 452.
Neurofibromatosis or Von Recklinghausen's Disease: Report of Case. F. L. Knight and A. M. Oelrich.—p. 457.

**Epileptic Seizures Confused with Functional Mental Disorders.**—Masland is of the opinion that there has been an unfortunate tendency to consider the mind as separate from the brain. The fallacy of this point of view is most strikingly apparent when one considers those patients whose mental symptoms are found to be closely related to organic brain disease. The author presents 3 cases of epilepsy in which mental symptoms predominated. The first 2 of these patients had been treated for long periods under the belief that their illness was purely functional. The psychic disturbances manifested by these epileptic patients are probably partly due to the disturbance of brain function occasioned by the abnormal epileptic discharge. Closely related to the effects of the seizure itself is the confusion state which develops after the seizure is over, and presumably is a result of fatigue or relative anoxia of the previously active area. On this basis probably depend the confusion states, the periods of amnesia and the occasional postictal furors which are observed in patients with focal lesions. The distinguishing features which serve to indicate the epileptic nature of these mental disturbances are the episodic character of the mental aberration and the occurrence of partial or complete impairment of consciousness. The appearance of generalized seizures in addition to the minor or petit mal type of attack is an additional clue. The diagnosis can usually, but not always, be confirmed either by electroencephalogram or by the response of the patient to therapy with "dilantin" (diphenylhydantoin sodium) and phenobarbital. These patients present a twofold problem lying in the realm of both psychiatry and neurology.

## Oral Surgery, Oral Medicine & Oral Path., St. Louis

### 1:815-886 (Sept.) 1948

Acrylic Cranioplasty. V. R. Trapozzano, F. C. Grant and E. B. Spitz. —p. 815.
Clinical and Histologic Study of Surface Characteristics of Gingiva. B. Orban.—p. 827.
*Treatment of Acute and Subacute Localized Osteomyelitis with Chemotherapy. M. J. Oringer.—p. 842.
*Etiology and Diagnosis of Actinomycosis. H. B. G. Robinson and J. Ennever.—p. 850.
Relationship of Maxillary Antrum to Oral Surgical Problems of Dental Origin. J. L. Goldman.—p. 859.
Further Studies on Effect of Correction of Mechanical Factors on Angular Cheilosis in Malnourished Edentulous Patients. A. W. Mann, S. Dreizen and T. D. Spies.—p. 868.

**Treatment of Localized Osteomyelitis.**—Oringer reports 1 case of subacute localized osteomyelitis of the maxilla following the extraction of the upper right cuspid and first molar in a man aged 49 and 1 case of subacute localized osteomyelitis of the mandible following the extraction of the lower four anterior teeth in a man aged 62. In both cases routine postoperative measures were unavailing to check or cure the infection. In the first case treatment attempted by inserting penicillin cones locally into the affected area proved completely ineffective. The prolonged presence of these cones and the progressive deterioration after their insertion would indicate that they may have aggravated the condition by acting as foreign bodies. In the second case the local use of tyrothricin, without accompanying systemic therapy, produced improvement, but failed to effect a cure. In both cases, combined local and systemic chemotherapy by irrigation with tyrothricin, application of gauze dressings prepared with bismuth subnitrate-iodoform-petrolatum paste and by intramuscular administration of a total dose of 1,200,000 units of penicillin, was highly effective. Although the amount of surgical intervention required in both cases was minimal, it was essential. Suppuration was diminished shortly after chemotherapy was instituted, but it was not until the sequestrums were removed that suppuration ceased entirely and a cure was effected. In both cases the infection was successfully confined to the limits of the original areas of involvement, the fever and malaise were rapidly overcome, and shortly after active infection was checked, evidence of rapid bone regeneration was noted. Chemotherapy provides sterilization of the infection. Evacuation of the contents of the diseased area, both pus and sequestrums, by means of surgery must then be performed before obliteration of the resultant cavity by bone and tissue regeneration can take place.

**Actinomycosis.**—According to Robinson and his co-workers, studies of actinomycosis have been misleading, chiefly because of misunderstandings concerning the etiologic agent. Actinomyces israeli, the causative organism, is an anaerobic or microaerophilic organism which does not exist free in nature but which has been confused with the aerobic forms of actinomycetes occurring on grasses and grains. A. israeli is a normal inhabitant of the oral cavity, and more than 50 per cent of actinomycotic lesions are of the cervicofacial type. Clinically, actinomycosis may occur in many different forms varying from incipient lesions that are not suspected until biopsy reveals the presence of A. israeli to extensive, disfiguring, proliferating lesions. The absence of the so-called sulfur granules from the pus should never be taken as positive evidence that actinomycosis does not exist. Conversely, small masses of bacteria, food debris, bone spicules, cell debris or other foreign matter in pus may appear macroscopically similar to "sulfur granules" in the absence of actinomycosis. Culture methods are more reliable than examination of direct smears. The biopsy is of value in diagnosis of actinomycosis because of the rather characteristic appearance of the colonies of A. israeli within tissue lesions. Along the peripheries of circular masses and along the borders of trabecular plaques farthest from the bone, acidophilic clubs and ends of filaments may be seen projecting; they give the ray appearance to the granular colonies. Since A. israeli may form colonies without clubs and since similar granules may be observed in actinobacillosis, the finding of characteristic granules in the tissue is not evidence per se of actinomycosis, but is of relatively high diagnostic value.

## South Dakota Journal of Medicine, Sioux Falls

### 1:300-341 (Aug.) 1948

Address of President. H. R. Brown.—p. 302.
Modern Therapeutic Agents. G. C. Gross.—p. 339.

### 1:342-381 (Sept.) 1948

Diagnosis and Management of Glaucoma. H. L. Bair.—p. 342.
Northern Great Plains Health Conference: Nemo, South Dakota, July 5-10, 1948. D. C. Whitcomb.—p. 348.
Cardiac Failure in Pregnancy. E. Pekelis.—p. 352.

## Surgery, Gynecology and Obstetrics, Chicago

### 87:385-512 (Oct.) 1948

Surgical Procedures Employed and Anatomic Variations Encountered in Treatment of Congenital Pulmonic Stenosis. A. Blalock.—p. 385.
Bacteriology of Vagina in 75 Normal Young Adults. F. R. Lock, Martha Dukes Yow, Mary I. Griffith and Carolyn Stout.—p. 410.
*Inflammatory Carcinoma of Breast. A. C. Meyer, M. B. Dockerty and S. W. Harrington.—p. 417.
Early Closure of Constantly Contaminated Infected Wounds with Aid of Urethane-Penicillin Mixtures. C. W. Howe.—p. 425.
Large Pulsion Esophageal Diverticulum with Complications. F. H. Lahey. —p. 435.
Chemotherapy in Peritonitis Due to Perforation of Abdominal Viscus. E. M. Colvin and F. T. Wallace.—p. 440.
*Treatment of Acute Renal Insufficiency. E. E. Muirhead and J. M. Hill.—p. 445.
Intramural Extension of Carcinoma of Descending Colon, Sigmoid, and Rectosigmoid: Pathologic Study. W. A. Black and J. M. Waugh. —p. 457.
*Studies on Vagotomy in Treatment of Peptic Ulcer: IV. Changes in Gastric Motility and Effect of Drugs on Motility Following Complete Vagotomy. I. F. Stein Jr., K. A. Meyer and F. Steigmann.—p. 465.
Intraperitoneal Pressure in the Human. J. C. Drye.—p. 472.

**Inflammatory Carcinoma of Breast.**—Meyer and his associates call attention to the fact that certain malignant lesions of the breast may simulate inflammatory lesions, for which they have been mistaken, although they represent a highly virulent type of cancer. They reviewed 7,000 consecutive cases of malignant lesions of the breast encountered at the Mayo Clinic. Cases in which inflammatory signs were manifested were selected for further study. After the discarding of cases in which redness and edema were localized and obviously due to early necrosis and infection from invasion of the skin, 74 cases which seemed characteristic were selected. Tissues obtained in 65 of these cases were studied. The fact that 74 cases of the inflammatory type of cancer were discovered among 7,000 cases of mammary cancer indicates an incidence of about 1 per cent. The disease was found to occur in the same general age group as carcinoma of the breast, and there was no correlation with pregnancy or lactation. The incidence of bilateral cancer was two times that noted in comparable cases of the usual carcinoma of the breast. The left breast was affected primarily nearly twice as frequently as the right. The skin over the breasts was red or edematous or both, and palpation frequently revealed diffuse infiltration. The axillary nodes were involved in all cases. The lesions were diffuse, high grade adenocarcinomas, which frequently involved the lymphatics and occasionally the blood vessels. Characteristically, the cancer spread through the subepidermal lymphatics. There was no evidence of bacterial infection, and ulceration of the skin was rare. The inflammatory appearance was apparently due to blockage of the lymphatics by cancer cells and the resultant vascular phenomena. Prognosis for life is poor, but 3 patients lived more than five years after operation, and 1 was alive nine years after operation.

**Treatment of Acute Renal Insufficiency.**—According to Muirhead and Hill different conditions are associated with acute bilateral renal damage and acute renal insufficiency. The syndrome resulting from this type of renal lesions has been designated by different terms such as "renal anoxia syndrome," "lower nephron nephrosis" and "hemoglobinuric nephrosis." The high mortality rate of certain types of acute renal insufficiency may be substantially lowered by altering the therapeutic approach. The authors report 3 cases to lend additional support to this thesis. The proposed management consists of positive measures based on renal morphologic changes and the main features of the clinical course. There are three main phases, each of which requires its own therapeutic measures. The hypotension of the first phase is best managed with completely compatible blood. During the second phase (renal insufficiency) a near normal state of hydration is maintained and complete starvation and definite acidosis are prevented as much as possible. During the third phase (diuresis) not only is the water loss replaced but as much as possible a gram for gram salt replacement is made. The regimen is based on the premise that damaged kidneys require time for healing. Evidences of healing appear between the eighth and the twelfth day. Attempts to stimulate the kidneys to produce urine during the oliguric period usually fail. An excessive intake of water or salts over that immediately lost causes an overload and upsets existing osmolar concentrations. It is believed that much of the mental aberrations can be attributed to these complications. Relatively mild forms of this condition may be made severe or even fatal as a result of complications related to management.

**Gastric Motility and Effect of Drugs on Motility Following Complete Vagotomy.**—Stein and his co-workers studied the gastric motility of 27 patients with peptic ulcer before and after vagus section. They found that no spontaneous or insulin-induced type I, II or III hunger contractions are present in the fundus of the stomach up to nine months after complete vagotomy. There is great delay in gastric emptying following complete vagotomy. After incomplete vagus section, hunger contractions are present either spontaneously or following insulin hypoglycemia. "Doryl" (carbaminoylcholine) 0.25 mg. subcutaneously, or "urecholine" (carbaminoyl-beta-methylcholine chloride), 5.0 mg. subcutaneously, produced a rapid but transitory increase in gastric tone and motility following complete vagotomy. The oral administration of "doryl," 2.0 to 4.0 mg., or "urecholine," 10.0 mg., usually produces a more sustained increase in gastric tone and motility. Neostigmine bromide and methacholine chloride have little if any effect on gastric motility after complete vagotomy.

## Texas State Journal of Medicine, Fort Worth

44:277-344 (Aug.) 1948

The General Practitioner. L. S. Goin.—p. 287.
Medical Education: At Odds with Some of Its Traditions. R. I. Lee. —p. 289.
Reduction of Maternal and Infant Morbidity and Mortality Through Controlled Nutrition. R. Luikart.—p. 295.
*Serum Proteins in Pregnancy: Effect of Food Rationing and Relation of Serum Protein Level to Edema. J. W. Worsham.—p. 299.
Antibiotic Drugs: Their Uses and Abuses. R. A. Cooper.—p. 302.
Syphilis from the General Practitioner's Standpoint. J. W. Sybilrud. —p. 308.
Rapid Treatment for Syphilis at Rocky Mountain Hospital, Overton, Texas. D. A. York Jr.—p. 310.
Cardiolipin and Kolmer Antigens in Complement Fixation Test for Syphilis. J. A. Kolmer and Elsa R. Lynch.—p. 312.
Laboratory Aspects of Certain Tropical Diseases. T. B. Magath.—p. 316.
Pheochromocytoma: Report of Case Successfully Treated by Surgery. S. A. Foote Jr., J. P. Barnes, T. H. Guthrie and P. V. Ledbetter. —p. 320.
Management of Acute Sinus Infection. J. D. Roberts.—p. 324.
Medico-Legal Testimony: Expert Witness. F. H. Tyner.—p. 326.
Ophthalmology and Otolaryngology in the Okinawan Campaign. E. D. McKay.—p. 330.

**Serum Proteins in Pregnancy.**—Worsham studied the relationship of edema of pregnancy to the serum protein level of the blood under controlled conditions of a relative maximum of meat intake. A group of 184 cases studied during food rationing was compared with 193 cases studied after food rationing was discontinued. No difference in blood serum protein levels was found. Only 52 per cent of an average group of American women had a total serum protein level that could be considered within normal limits. Nineteen per cent had bodies dangerously depleted of proteins and were not good candidates to bear large families of strong, healthy children. After elimination of all controllable factors, 8 per cent of the normal protein group had some edema, usually mild; 78.4 per cent of the group frankly deficient in protein had edema and a large percentage of these women had severe swelling. After eliminating as an error the 8 per cent in the "normal" serum protein group showing edema and adjusting for this error in the other groups, patients with serum proteins between 6.0 Gm. and 5.5 Gm. per hundred cubic centimeters of blood showed 21.2 per cent edema, and the group with serum protein levels of 5.5 Gm. and below showed 72.3 per cent edema. Hemoglobin determinations were found to fall with the serum protein level. Hematocrit determinations and red blood cell counts did not seem noticeably affected.

## United States Naval Med. Bulletin, Washington, D. C.

48:649-822 (Sept.-Oct.) 1948

General Principles and Purposes of Tracer Studies. C. L. Gemmill. —p. 649.
*Importance of Leprosy in Orthopedic Surgery. J. W. Metcalfe.—p. 656.
Use of Curare in Anesthesia in United States Naval Hospital. C. W. Reynolds.—p. 668.
Analysis of Submarine Food Problems in World War II. C. W. Shilling and I. F. Duff.—p. 683.
Dental Observations of Native Puerto Ricans with Special Reference to Their Habits of Citrus Fruit Consumption. W. A. Newman.—p. 698.
Tuberculosis Program on Guam Including an All-Island Tuberculin Patch Test Study. H. Jacobziner.—p. 700.
Venereal Disease Among Naval Prisoners. L. Z. Freedman.—p. 722.
Primary Splenic Neutropenia with Concomitant Lymph Node Changes. L. C. Bell and R. L. Fleck.—p. 729.
Herpes Zoster Following Exposure to Varicella; Treatment of Herpes Zoster with Cowpox Vaccine. S. H. Horton Jr.—p. 742.

**Importance of Leprosy in Orthopedic Surgery.**—Metcalfe considers it probable that increased numbers of sporadic cases of leprosy may appear in the temperate zones as the result of mass migrations of troops and families through endemic areas during the war period. Certain symptoms of leprosy simulate orthopedic lesions and so the patient with beginning leprosy may appear at the orthopedic clinic for diagnosis. The author describes some of the lesions, particularly those involving the bones and joints. Roentgenologic findings on fingers and toes include notching of tip, sliced off appearance, collar button absorption of short phalanges and enlarged nutrient foramen. Joint lesions include: subchondral cysts, degenerative changes, ankylosis and subluxation. Among the larger lesions the author mentions: (1) transverse linear zone of rarefaction at phalangeal epiphysis as a sign of leprous osteochondritis; (2) cystic degeneration near nutrient artery of phalanx as sign of a leprous osteomyelitis; (3) concentric bone atrophy with narrowing of shaft without rarefaction, and (4) absorption of distal articulating surface of bone with "awl-shaped" appearance, also likened to that of a "sucked candy stick." The author shows that diagnosis of leprosy must include a wide variety of dermatologic, neurologic and other conditions. The specific diagnosis depends on the demonstration of the Hansen bacillus, which is best done by making a small oblique incision in the skin at the border of the pigmented or anesthetic area with a razor blade and scraping a drop or two of serum for acid-fast staining.

## West Virginia Medical Journal, Charleston

44:235-264 (Sept.) 1948

Hypertension Today (Part I). M. Koenigsberg.—p. 235.
*Industrial Medicine Comes of Age. Jean S. Felton.—p. 239.
Prostatism. L. G. Lewis.—p. 245.
Ruptured Dissecting Aneurysm of Ascending Aorta with Hemopericardium in Twenty-Four Year Old Male. R. U. Drinkard and G. L. Armbrecht.—p. 249.

**Industrial Medicine Comes of Age.**—Felton shows that wartime development in industrial health methodologies have allowed extension of preventive medicine procedures into the peacetime production scene. Through selective placement, workers are matched against jobs, allowing employment of nearly 100 per cent of applicants. Case-finding surveys have been developed in industry in order to detect tuberculosis, syphilis, early heart changes and alterations in visual and aural skills. Understanding of the human relations involved in the group living of industry has led to resolution by the medical director of situational conflicts, providing management with a better method of reversing impaired employee relations. The introduction of rehabilitation procedures, through the cooperation of industry and the Office of Vocational Rehabilitation, has made for job betterment of the physically limited employee. Industrial medicine has given further evidence of coming of age by the creation of a specialized literature, the establishment of criteria for fellowships and residencies and the formation of professional organizations.

## FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

### British Heart Journal, London

#### 10:65-140 (April) 1948

Surgery of Congenital Heart Disease: Malformations of Heart Amenable to Blalock-Taussig Operation. Helen B. Taussig.—p. 65.
*Surgical Treatment of Pulmonic Stenosis.* A. Blalock.—p. 68.
Coarctation of Aorta. C. Crafoord.—p. 71.
Patent Ductus Arteriosus. R. Gilchrist.—p. 75.
Pulmonary Heart Disease: Acute and Chronic. J. McMichael.—p. 80.
Right Median Ventricular Pressure in Certain Chronic Bronchopulmonary Disturbances. J. Lenègre and P. Maurice.—p. 81.
Pulmonary Heart Disease. W. D. W. Brooks.—p. 83.
Clinical Value of Chest Leads. F. N. Wilson.—p. 88.
Use of Phonocardiograph in Clinical Cardiology. W. Evans.—p. 92.
*Rapid Digitalization. W. Evans, P. Dick and B. Evans.—p. 103.
Relative Value of Digitaline Preparations in Heart Failure with Auricular Fibrillation. P. Dick.—p. 122.
The Heart in Rheumatoid Arthritis. E. J. Fischmann and F. J. Gwynne. —p. 125.

**Rapid Digitalization.**—The present clinical trial by Evans and his associates was designed to discover the most effective preparation for rapid digitalization when given orally or intravenously, by comparing the effect of as many preparations as possible in the same patient and under the same conditions. The following drugs were tested: strophanthin, ouabain and k-strophanthosid, digoxin, digitoxin, lanatoside C, digitalis leaf, and the tincture of digitalis. A clinical trial was made on 20 patients with auricular fibrillation and heart failure. Digoxin and lanatoside C proved to be the best and digitoxin was scarcely less efficient. Should it be necessary to induce digitalization within two hours, digoxin as 1.5 mg. intravenously or as 2 to 3 mg. orally, and lanatoside as 1.5 mg. intravenously only, can best accomplish it. To establish adequate digitalization within four hours digoxin, 2 mg. by mouth, is an effective method. As it is seldom necessary to obtain a digitalis effect in less than two to three hours, and as intravenous medication may be less convenient, digoxin, 2 to 3 mg. by mouth, is generally the best way to induce rapid digitalization.

### British Journal of Dermatology and Syphilis, London

#### 60:275-314 (Sept.) 1948

*Some Observations on Keratohyalin in Warts.* E. Meirowsky and S. Keys.—p. 275.
Inguinal Adenitis in Primary Syphilis in the Male. W. Fowler.—p. 279.
Epithelioma Following Local Treatment of Pruritus Ani with Liquor *Picis Carbonis. G. Hodgson.—p. 282.*
Dermatologic Experiences in Prague During the Two World Wars. E. Patraček.—p. 283.

### British Medical Journal, London

#### 2:451-504 (Sept. 4) 1948

Accident and Opportunism in Medical Research. H. Dale.—p. 451.
Problems of Clinical Research. L. J. Witts.—p. 455.
Medical Research in the Laboratory. C. Harington.—p. 459.
Structure and Functions of the Medical Research Council. F. H. K. Green.—*p. 462.*
The Statistician and Medical Research. M. Greenwood.—p. 467.
Research in General Practice. W. N. Pickles.—p. 469.
Medical Education in the United States. R. Whitehead.—p. 471.

#### 2:505-542 (Sept. 11) 1948

Human Relations in Industry. G. Schuster.—p. 505.
*Rat-Bite Fever due to Streptobacillus Moniliformis. I. R. W. Lominski, A. S. Henderson and J. W. McNee.—p. 510.
Case of Acute Dermatomyositis. *J. MacD. Holmes.—p. 511.*
*Post-Prandial Symptoms Following Partial Gastrectomy. W. T. Irvine. —p. 514.
Puerperal Septicemia due to Pseudomonas. Pyocyanea: Failure with Streptomycin. H. Sobhi and O. Khairat.—p. 516.
Laurence-Moon-Biedl Syndrome. G. H. Anderson.—p. 517.

**Rat Bite Fever.**—Lominski and his associates point out that infection with Spirillum minus (originally named Spirocheta morsus muris by its Japanese discoverers in 1916-1917) is the commoner variety. Infection with Streptobacillus moniliformis is much rarer. The incubation period of the spirillar infection is usually longer (seven days or much more) than in the streptobacillary disease (three days or more), but the period is so variable that only a clear history of a bite followed by a long interval before illness develops might clinically suggest the spirillar variety. The newer arsenical drugs are effective against the Spirillum minus, but the streptobacillary disease ran a protracted and serious course until the advent of penicillin. The authors report the case of a man who was bitten on the right thumb while handling a hooded rat prior to an experimental operation. On the morning of the third day he felt ill on wakening. A severe rigor followed almost immediately, lasting half an hour. Treatment with penicillin was completely successful, the disease being cured. Much larger dosage, probably excessive, was employed than in cases previously described, but the illness was severe and relapse had *occurred in the days of penicillin scarcity.*

**Postprandial Symptoms Following Partial Gastrectomy.** —Irvine reviews observations on 24 patients in whom postprandial symptoms developed after they had undergone subtotal gastrectomy for duodenal or gastric ulcer. The type of operation performed was a gastrectomy, three quarters of the stomach and the first inch of the duodenum being removed, with an antecolic anastomosis. The patients complained of heaviness and fulness in the epigastrium, accompanied by muscular or body fatigue; in cases with more severe effects they may have to lie down and may fall asleep. A flushing of the skin may occur and the patient may perspire. Giddiness and palpitations occur often. Such symptoms were present in all 24 cases. Bilious vomiting occurred in 2 of the cases. The symptoms started either while the patient was in the hospital or as soon as he went home. The symptoms started almost immediately after meals or while the patient was still eating. The upset usually lasted twenty to thirty minutes. The rapidity of onset suggested a mechanical causation, and in nearly every case the symptoms could be brought on rapidly by eating more quickly, and when a larger meal was given the symptoms usually increased in severity. A careful study was made of the type of food and the amount taken at each meal in the day, and a rough measure of the total bulk of each meal and its total carbohydrate content was made. In 23 cases the symptoms appeared only after "the big meal," i. e., the most bulky meal of the day. By tests with dextrose it was proved that it was the bulk and not the carbohydrate content of the meal which mattered. The author cites factors which indicate that the symptoms are due to mechanical distension of the intestine and the resulting stimulation of the sympathetic system.

### Indian Journal of Medical Research, Calcutta

#### 36:1-72 (Jan.) 1948. Partial Index

Observations on Cholera Vaccine. M. L. Ahuja and G. Singh.—p. J.
Incidence of Murine Typhus Amongst Wild Rodents in Poona and Bombay. M. G. P. Stoker.—p. 15.
Nutritive Value of Hydrogenated Vegetable Oils: Digestibility of Ground-Nut (Arachis Hypogea) Oil Hydrogenated to Different Degrees of Hardness. U. C. Misra and V. N. Patwardhan.—p. 27.
*Relation of Vitamin A to White Cells in Human Blood and Normal White Cell Counts in The Punjab. M. U. Hassan, M. Ibrahim and L. C. Khanna.—p. 33.

**Relation of Vitamin A to White Blood Cell Count.**—Hassan and his associates studied the blood of 60 normal male students to determine the relationship between the vitamin A content of the blood and the total and differential leukocyte count. They found that with the increase in the vitamin A content the total number of leukocytes tends to decrease. Lymphocytes and monocytes tend to increase and neutrophils and eosinophils decrease. There is a shift to the right in the hemograms of Arneth and Schilling. Vitamin A deficiency brings about physiologic leukocytosis. It appears that there is some relationship between vitamin A and the general defense mechanisms of the body.

### Journal of Endocrinology, London

#### 5:259-328 (June) 1948. Partial Index

Influence of Gonadal Hormones on Composition of Blood and Liver of Domestic Fowl. R. H. Common, W. Bolton and W. A. Rutledge. —p. 263.
Creatine-Creatinine Metabolism in Adult and Juvenile Hyperpituitarism. I. Schrire.—p. 274.
Effect of Testosterone Propionate on Liver of Adult Female Rats. G. L. M. Mannerfelt.—p. 293.
Sabaceous Glands: I. Effect of Sex Hormones on Sebaceous Glands of Female Albino Rat. F. J. Ebling.—p. 297.
Role of Adrenal Glands in Protein Catabolism Following Trauma in Rat. R. L. Noble and C. Gwendoline Toby.—p. 303.

## Lancet, London

### 2:401-440 (Sept. 11) 1948

Modern Phonocardiography. G. E. Donovan.—p. 401.
Experimental Macrocytic Anemia in Rat. G. M. Watson, D. G. Cameron and L. J. Witts.—p. 404.
*Primary Tuberculosis with Meningism and Bacilli in Spinal Fluid: Significance in Streptomycin Treatment of Tuberculous Meningitis. K. Choremis and G. Vrachnos.—p. 408.
Accidental Intra-Arterial Injection of Drugs. S. M. Cohen.—p. 409.
Acute Transverse Myelitis Complicating Pneumonia: Report of Case. A. I. Suchett-Kaye.—p. 417.

**Primary Tuberculosis with Bacilli in Spinal Fluid.**—Choremis and Vrachnos present histories of 2 children, boys of 11 months and 2 years, respectively, in whom tubercle bacilli were isolated from the cerebrospinal fluid without accompanying manifestations of tuberculous meningitis. Both patients, 1 of whom received streptomycin, survived, and they were well four and two and one-half months later. In the cerebrospinal fluid tubercle bacilli may sometimes either exist without any focal lesion in the brain or meninges, or may derive from a minimal meningeal lesion which resolves. The second explanation seems the more likely. It is suggested that in assessing "cure" of tuberculous meningitis greater weight should be attached to chemical and cytologic findings in the cerebrospinal fluid than to the results of culture for the tubercle bacillus.

### 2:441-480 (Sept. 18) 1948

Clinical Research in Education of Specialist. W. M. Arnott.—p. 441.
Streptomycin in Non-Tuberculous Infections: Summary of Report to Medical Research Council. C. Wilson.—p. 445.
Streptomycin Treatment of Meningitis Due to Gram-Negative Saprophytes. W. Lewin and R. L. Vollum.—p. 446.
*Streptomycin in Pulmonary Tuberculosis: Report on 10 Cases. R. Y. Keers.—p. 449.
Eosinophil Cell: Studies in Horse and Camel. F. Duran-Jorda.—p. 451.
*Meningo-Encephalitis in Man Due to Louping-Ill Virus. G. Davison and C. Neubauer.—p. 453.
Leontiasis Ossium. C. B. Way.—p. 457.

**Streptomycin in Pulmonary Tuberculosis.**—Keers says that through the American Red Cross a consignment of 600 Gm. of streptomycin was presented to a Scottish sanatorium. The cases selected for treatment were (1) a case of severe tracheobronchial tuberculosis, (2) a tuberculous sinus in the chest wall persisting after a thoracoplasty for tuberculous empyema, (3) 2 cases of acute exudative pulmonary tuberculosis and (4) a small contralateral spread of disease following thoracoplasty. The remaining streptomycin was used as a cover during the stages of thoracoplasty operations in cases in which there seemed to be an appreciable risk of extension of the disease. All patients received 1 Gm. of streptomycin in twenty-four hours, given in two doses of 0.5 Gm. at 8 a. m. and 8 p. m. Administration was by intramuscular injection. The response of the bronchial disease, the chest wall sinus and the laryngeal lesion was prompt and unmistakable. This suggests that streptomycin will find its greatest sphere of usefulness in the management of the extrapulmonary sequelae of tuberculosis. Case 4, an active pulmonary lesion of exudative type, was disappointing. It had been hoped to control the exudative phase and render the patient fit for thoracoplasty; this was not accomplished. In the case of tuberculous pneumonia, on the other hand, there appeared to be appreciable benefit and the fever and constitutional symptoms subsided early conforming to the experience of Allison. The part played by the streptomycin in case 6 and in the 4 thoracoplasty cases in which it was used prophylactically is impossible to assess. The decision to use streptomycin in pulmonary tuberculosis should be taken only after careful consideration. The benefit to the patient is by no means certain, and this possible benefit must be weighed against the danger of producing a streptomycin-resistant strain of bacilli and thus creating a future public health problem. On the available evidence there appear to be few cases of purely pulmonary disease in which the use of streptomycin could be advised. It may have value in treatment of the extrapulmonary complications of pulmonary tuberculosis. Its use in tuberculous pneumonia, to prepare the way for effective collapse therapy, is probably justified.

**Human Meningoencephalitis Due to Louping Ill Virus.**—Davison and Neubauer point out that louping ill occurs naturally in sheep and has been traced to a filter-passing virus for which the sheep tick (Ixodes ricinus) is the natural vector. All 6 previously reported cases of louping ill in human subjects have been in laboratory workers. The authors cite histories of 2 patients with louping ill in whom there was evidence that the disease had been contracted naturally. The clinical picture of louping ill in man is that of meningoencephalitis, usually following a prodromal influenza-like illness and followed by complete recovery in most cases. It is suggested that the illness would be more often diagnosed if it were suspected whenever meningoencephalitis appears in a person exposed to louping ill virus. The authors present evidence linking louping ill with Russian spring-summer encephalitis.

## Medical Journal of Australia, Sydney

### 2:141-168 (Aug. 7) 1948

Winning the Peace: Doctor's Contribution. F. L. Wall.—p. 141.
*Value of Coombs Test in Detection of Iso-Sensitization of the Newborn. Rachel Jakobowicz, Vera I. Krieger and R. T. Simmons.—p. 143.
Relaxing Agents in Anesthesia: Brief Appraisal. S. V. Marshall. —p. 150.

**The Coombs Test for Isosensitization of the Newborn.**—Jakobowicz and her associates state that Coombs and others in 1945 described a new method of testing for "incomplete" Rh antibodies (Wiener's "blocking" antibodies) and for weak Rh agglutinins. They had found that rabbit antihuman globulin serum would agglutinate red blood cells which had adsorbed Rh antibodies onto their surface. It was thought that the rabbit antihuman serum reacted with the globulin part of the adsorbed antibodies. The test can be applied as the "direct Coombs test" and the "indirect Coombs test." In the direct test cells suspected of having been sensitized are exposed to the action of immune rabbit serum, which will agglutinate them if they have previously adsorbed antibody. In the indirect test a serum suspected of containing antibody is mixed with normal cells, which are subsequently tested with the immune rabbit serum. Although the direct test is primarily used in investigations for Rh sensitization, it is not specific for Rh antibodies, and a positive reaction simply indicates sensitization of the red cells by an antibody capable of reacting with the rabbit antihuman serum. The indirect Coombs test is used to detect Rh antibodies in the serum of the mother or in the newborn baby. Jakobowicz and her co-workers describe the results of the direct Coombs test on 1,580 specimens of cord blood and of the indirect Coombs test on 48 specimens of maternal serum and of 9 of cord serum. The direct Coombs test appears to be slightly more sensitive than other methods of detecting Rh immunization, although occasional positive reactions are observed in the absence of evidence of immunization. The indirect Coombs test is useful in confirming the presence of small concentrations of antibodies in the maternal or in the infant's serum.

## Transactions Royal Soc. Trop. Med. and Hyg., London

### 42:1-104 (July) 1948. Partial Index

*Investigations on Antibilharzial Action of Miracil D (Nilodin). J. M. Watson, M. A. Azim and A. Halawani.—p. 37.
Clinical and Serologic Follow-Up of Yaws Cases Treated by Acetylarsan and Bismuth Sodium Potassium Tartrate. I. Apted, R. D. Harding and M. Gosden.—p. 55.
Dengue in East African Command: Incidence in Relation to Aëdes Prevalence and Some Clinical Features. D. D. McCarthy and D. B. Wilson.—p. 83.
Capillaria Hepatica: Case Report. O. T. Brosius, Esther E. Thomas and Barbara Brosius.—p. 95.
Non-Pigmented Malaria Parasites in Bone Marrow From a Mixed Infection of Leishmania and Plasmodium Vivax. M. Yoeli.—p. 99.
Injuries Produced by Tropical "Water-Beetles." K. V. Earle.—p. 101.

**New Antibilharzial Drug.**—Watson and his co-workers review the history of attempts to develop a drug for the oral treatment of bilharzial disease in human beings and give an account of the development of the new antibilharzial drug "miracil D" ("nilodin"), which is a thioxanthone derivative (1-methyl-4-diethylamino-ethylaminothioxanthone hydrochloride). In those animals to which a sufficient dosage was given over a sufficient length of time, both viable ova and the symptoms of the disease disappeared and at necropsy only dead and disintegrating worms were found. In lower dosages the drug killed some of the worms and cured some animals, but not others. In human beings with bilharzial disease, low dosages appeared to be erratic in action, curing some patients and failing to cure others, but the results of the later trials, in which higher and more frequent doses were given, were more consistent. Viable ova disappeared from the urine or feces, hematuria vanished and the physical condition of the patient substantially improved, but most cases later showed partial relapse. Further improvement was achieved after second treatment, and although few complete cures were obtained the reduction in the number of ova and the amount of blood in urine or feces was considerable. The minimum effective dosage seemed to be 5 mg. per kilogram every twelve hours for a minimum period of five days, although a higher rate is almost certainly desirable. Toxic symptoms are generally slight and appear to affect only 1 out of 5 or 6 patients.

## Acta Oto-Laryngologica, Stockholm

### 36:199-310 (May-Aug.) 1948. Partial Index

Registration of Postrotatory and Optokinetic Nystagmus and the Optic-Vestibular Integration in Man. R. Jung.—p. 199.
Neuralgic Syndromes of Nasal Origin. A. Laskiewicz.—p. 203.
Serous Labyrinthitis as a Failure in Fenestration. T. Germán.—p. 220.
Prosthetic Treatment of Traumatic Laryngeal Stenosis. H. F. Fabritius.—p. 226.
*Aspects of Ferment Production by Tonsils. A. Šercer and I. Ruždić.—p. 236.
Chronic Sinusitis and Allergy. C. Larroudé.—p. 251.
New Method of Operative Closing of Lasting Retroauricular Fistulas. A. Dobrzanski.—p. 259.
Osteomyelitis in Cervical Vertebrae Following Adenotomy. N. G. Richtner.—p. 266.
Passage of Trypan Blue into Endolymphatic System of Labyrinth. H. C. Andersen.—p. 273.

**Ferment Production of Tonsils.**—Šercer and Ruždić cite investigators who studied the metabolism of the tonsils and reason that if ferments are formed in the tonsils, which supposedly play a part in the defense against noxious invaders, these ferments should be demonstrable in the blood stream. In order to throw light on this problem the authors studied the blood of patients for its content in ferments before and after tonsillectomy. They gained the impression that normal or hypertrophic tonsils produce such an amount of sugar-splitting ferments that this fact can be demonstrated in the blood by means of sufficiently sensitive methods. The extirpation of hypertrophic tonsils is followed by a considerable reduction in these ferments, but this condition is compensated after seven to eight days. In the presence of chronic inflammation of the tonsils complicated by systemic diseases the diastatic ferments are present in the blood in reduced or normal quantities and there is no change after the operation. This seems to signify that diseased tonsils produce either no ferments or only minimal amounts. Cases which are exceptions to this rule seem to indicate that the greatly enlarged tonsils had still an adequate amount of functioning tissue. The authors conclude that normal tonsillar tissue plays an essential part in the production of sugar-splitting ferments. They are making further investigations to determine the role of the tonsils in the formation of ferments that split fats and proteins.

## Archivos Argentinos de Pediatría, Buenos Aires

### 19:309-370 (June) 1948. Partial Index

*Penicillin in Gonorrhea in Infants and Children. Ambulatory Treatment with Injectable Penicillin (Comparison of Results with Those from Oral Administration). A. Wiederhold and A. Méndez.—p. 335.

**Penicillin in Gonorrhea in Children.**—Wiederhold and Méndez administered penicillin to two groups of infants and children, of 25 children each, with gonorrhea. Most of the children were girls. Children in the first group received penicillin by mouth in a total dose which varied from 200,000 to 1,500,000 units, the children in the second group receiving the drug by intramuscular injection in oil in one dose which varied from 200,000 to 250,000 units. The patients were observed for two years after clinical and bacteriologic recovery. Tests for reactivation of the disease were performed during this period. Permanent clinical and bacteriologic cure was obtained in all patients who received penicillin by mouth. Permanent clinical and bacteriologic cure was also obtained in 20 of 25 patients who had injections and in 5 patients in this group who had penicillin by mouth after failure of penicillin injections. The authors believe that administration of penicillin by mouth is more practical, is painless and more efficient than penicillin by injections.

## Journal de Médecine de Lyon

### 29:643-676 (Sept. 20) 1948. Partial Index

Present State of Treatment of Burns and Stenoses of the Esophagus; Therapeutic Results. J. Rebattu and H. Martin.—p. 643.
*Peripheral Laryngeal Paralysis, a Complication of Collapse Therapy. Piaget and Seguin.—p. 657.
*Labyrinthine Disturbances Caused by Streptomycin. Moindrot, J. Gaillard and Charles.—p. 667.

**Peripheral Laryngeal Paralysis in Tuberculosis.**—Piaget and Seguin report 4,779 patients with pulmonary tuberculosis who were treated at an altitude sanatorium in the Rhone district of France. Only 12 of these patients presented laryngeal paralysis, which occurred spontaneously in 9 and followed collapse therapy in 3, 2 of whom were subjected to Jacobaeus operation and 1 to phrenectomy. These 2 patients were the only ones of 1,340 on whom pneumolysis was performed, and the third patient was the only one of 170 with phrenectomies. Four additional cases are reported in which laryngeal paralysis occurred after pneumolysis and after surgical pneumothorax respectively. In spite of considerable improvement in surgical technic, the collapse therapy may be complicated by lesions of the laryngeal motor nerve cells. Although the incidence of this postoperative accident is low, it represented one quarter of the total number of cases of laryngeal paralysis which occurred in the patients with pulmonary tuberculosis in this medicosurgical sanatorium. The spontaneous interruption of laryngeal motor function in patients with pulmonary tuberculosis resulted from changes in the mediastinal cellular tissue caused by tuberculous periadenitis, and in rare cases from lesions of isolated peripleuritis. The pathogenesis of the postoperative laryngeal paralysis is related to that of the spontaneous paralysis, but its mechanism is obscure. Anatomic anomalies, exaggerated electric or caloric reactions and a specific fragility of certain nerves which have been sensitized by the bacillary toxin may play their part. Treatment failed except for 1 case, in which recovery was obtained by infiltration of the corresponding sympathetic ganglion. There were no complications besides vocal embarrassment and breathlessness during the first few days. The bronchopulmonary condition was not aggravated in any of the authors' cases.

**Labyrinthine Disturbances Due to Streptomycin.**—Moindrot and his co-workers report the occurrence of vestibular and cochlear disturbances in 16 children and in 34 adults who were treated with streptomycin. The daily dose of the drug varied from 0.25 Gm. to 3 Gm.; treatment was continued for twelve days to eight months. Vertigo appeared in 17 of the 34 adults about the twentieth day of the treatment; instability, mild nausea and a rotatory sensation occurred, but no vomiting. These symptoms disappeared within two to three weeks in spite of the continuation of the treatment. Spontaneous nystagmus occurred in only 3 patients; it was unilateral in 2 and bilateral in 1. Romberg's test was performed on 26 patients and revealed a mild tendency to falling in only 4. Rather frequently the patients could not maintain their equilibrium when standing on one leg. Deafness developed in 4 patients with tuberculous meningitis; it seemed to be the result of the disease rather than of the drug. There was no relationship between the dose of the drug given and the intensity of the disturbance. Three patients presented a total lack of response after 43 Gm., 19 Gm. and 20 Gm. respectively. Another patient presented simple hypoexcitability after 171 Gm. of the drug. One of 2 nurses with vertigo examined by labyrinth function tests showed a pronounced hypoexcitability, while the other presented loss of excitability; neither of them received streptomycin, but both handled the drug with ordinary precautions. Patients examined two to four months after the discontinuation of the treatment showed the same degree of hypoexcitability which was observed in other patients in the course of the treatment. Vestibular recuperation, when it occurs, is slow. In spite of the persistence of the vestibular dysfunction the disturbance of the equilibrium subsided in the great majority of the patients. It is suggested that the toxic effect of the streptomycin is exerted on the central vestibular nuclei. Vestibular dysfunction seems to depend on the individual susceptibility of the patient.

## Nordisk Medicin, Stockholm

### 39:1483-1518 (Aug. 13) 1948

Ulcer Colitis. F. Hirschberg.—p. 1483.
*Analysis of Fatal Cases of Bleeding Peptic Ulcer Treated with Free Feeding. E. Meulengracht.—p. 1490.
*Treatment of Achalasia Cardiac (So-Called Cardiospasm) with Forced Dilatation. A. Gjertz.—p. 1495.
Relation Between Constipation and Elongated Sigmoid Colon in Children. H. B. Granrud.—p. 1499.
Pituitary Tumor with Gastric Erosion. P. Strøier Rasmussen.—p. 1502.
Gastric Syphilis. G. Rickeles.—p. 1503.
Isolated Lymphogranulomatosis in Gastrointestinal Canal. O. Lövgren and S. Törnqvist.—p. 1505.
Pancreatolithiasis. L. Abramson.—p. 1506.
Nicotinamide Treatment in Pellagrous Diarrhea ("Pellagra sine Pellagra"). A. Flachs.—p. 1507.

**Analysis of Fatal Cases of Bleeding Peptic Ulcer Treated with Free Feeding.**—Meulengracht states that in Bispebjerg Hospital's Medical Division B free feeding has been the routine treatment of peptic ulcer since 1931. Of the 1,031 patients treated, with average age of 48, 26 died during hospitalization, 19 from persistent or repeated hemorrhage. Of the 26, 25 were over 40 and half were over 60. In all the fatal cases the bleeding was manifested by hematemesis. Many patients were too weak to eat and drink. The gross mortality was 2.6 per cent; excluding cases in which death was due or largely due to complicating disorders and cases fatal within twenty-four hours, the net mortality was 1.5 per cent. The author concludes that more extensive use should be made of blood transfusions, primarily in patients over 40 with hematemesis and clinical signs of persistent or repeated hemorrhage. Operation should be considered only in the case of patients over 40 when the condition is threatening in spite of repeated blood transfusions, if no grave contraindications for operation exist and the ulcer has been demonstrated roentgenologically.

**Treatment of Achalasia Cardiae (So-Called Cardiospasm) with Forced Dilation.**—Achalasia cardiae, Gjertz says, designates a condition in which the passage of food from the esophagus to the stomach is hindered by functional disturbance in the cardiac region with more or less dilatation of the esophagus above the cardia. Most of his 67 patients had been previously treated with spasmolytics without effect, and in a few cases operation had been done with no or transient effect. Forced dilation was carried out in 64 patients with good results in most cases. Follow-up of 45 patients from half a year to seven years showed that 30 were completely or almost completely well; 14 improved, and 1 not improved. Only 6 patients felt that the remaining symptoms affected their general condition and ability to work. Hurst's view that no true spasm is associated with achalasia cardiae seems to be supported. Cases with true spasm in the cardia region were eventually found to be cases of cancer of the cardia or adjacent parts of the stomach.

## Praxis, Bern

### 37:639-662 (Sept. 2) 1948. Partial Index

*Bronchiectasis, A Surgical Disorder. A. P. Naef.—p. 639.
Tyrothricin, A New Antibiotic for Local Treatment in Otorhinolaryngology. M. Mirault-Kretchmar.—p. 647.

**Surgical Treatment of Bronchiectasis.**—Naef treated 3 adults and 1 child with bronchiectasis, by surgery. In case 1 a lobectomy of the lower lobe of the left lung and a resection of the lingular segment was performed on a man aged 43 under unfavorable conditions because of a chronic hemopneumothorax which became infected during the operation and which required a secondary plastic operation. Except for this almost unavoidable accident the result was satisfactory, and the patient, who before the operation had been an invalid, has resumed his work. In case 2, the 22 year old patient made a complete recovery after a lobectomy (lower lobe, left lung) for localized bronchiectasis. In case 3 excision of the lower and median lobes of the right lung was performed on a man aged 53 for advanced chronic bronchiectasis of twenty-five years' duration. The clinical and functional result was satisfactory. In the fourth patient, a boy aged 6, atelectasis of the left lung developed after aspiration of a foreign body, resulting in multiple pulmonary abscesses and bronchiectasis. A left pneumonectomy was well tolerated, and the child recovered from grave bronchopulmonary suppuration. The preoperative and postoperative administration of antibiotics by the intramuscular route and in the form of aerosols has improved the surgical results. Penicillin and streptomycin therapy combined with postural drainage and bronchoscopic aspirations reduced the risk of atelectasis and of postoperative pneumonia resulting from bronchogenic dissemination of secretions. The technic of multiple segmental resection makes possible effective treatment of multifocal and bilateral bronchiectasis with conservation of normal pulmonary tissue essential for respiratory function. In young patients, and particularly in children, a genuine vicarious hypertrophy of the remaining healthy pulmonary tissue is possible, while in adults emphysema may be the sequel of resection. Early diagnosis of bronchiectasis makes surgical treatment feasible at the most favorable time, i.e., during youth.

## Revista Argentina de Cardiología, Buenos Aires

### 15:53-84 (March-April) 1948. Partial Index

*New Method of Graphic Registration of Certain Mechanisms of Cardiovascular System as Based in Variation of Electrolytic Resistance. B. Günther and G. Concha.—p. 59.

**Graphic Registration of Certain Mechanics of Cardiovascular System.**—Günther and Concha describe a new method for the registration of the venous, radial and carotid pulse, the apex beat and the peak of the R wave of the electrocardiogram, in man. The method consists in the utilization of a variable electrolytic resistance, the value of which is modified by the movements of a fine wire immersed in a capillary tube containing alcohol and glycerol. A direct current flows through the wire. The potential differences thus created are of the order of millivolts and are amplified by means of any common electrocardiograph. The details of the electrical circuit and of the different recording capsules are specified.

## Semaine des Hôpitaux de Paris

### 24:2325-2346 (Sept. 30) 1948

*Bouillaud's Disease and Treatment of Its Forms of Slow Course by Intra-Arterial Injection of Strepto-Enterococcic Anavaccine. M. Debray and Miss M. Provendier.—p. 2325.
Familial Neutropenia. J. Bousser and R. Nedey.—p. 2332.
Practical Conceptions of Electrocardiography. P. Bardin and G. Mayonade.—p. 2336.

**Bouillaud's Disease.**—According to Debray and Provendier, clinical facts, anatomic observations and infectious complications of rheumatic fever suggest that it is a disease of the arterial tree. The insidious latent course or the more or less delayed bouts of this disease strongly suggest the persistence of a specific germ. The latter may cause or may maintain or renew under certain influences a state of sensibilization which may explain the nature of the attacks. It is also possible that fatigue, cold or an infectious episode may be sufficient to elicit an acute attack similar to that which may be produced by injection of vaccine or serum. Although the salicylates are considered specific in the treatment of acute forms of rheumatism, there are many cases in which arthralgia, fever or cardiac disturbances persist. In these cases of a slow course which are refractory to chemotherapy, favorable results were obtained with intra-arterial injections of an anavaccine, 1 cc. of which contained 0.4 cc. of a lysate of streptococcus and enterococcus digested with formaldehyde and 0.2 cc. of a sodium lysate of staphylococcus. Twelve patients, 9 women and 3 men between the ages of 20 and 61 years, were given anavaccine injections in the femoral artery every four to seven days. The initial dose of 0.25 cc. was increased progressively with 0.25 cc., provided that the resulting rise of temperature did not exceed 38.5 C. (101.8 F.). The temporary rise of temperature after the injection was occasionally preceded by a sensation of cold in the fingers and toes and paleness of these parts. No serious accidents occurred. Salicylates and anavaccine do not exclude one another but may be used combined successively or separately. One compensates for the weakness of the other. The anavaccine should not be employed in patients of advanced age or in those with arterial hypertension or renal insufficiency. It is recommended for cases with a prolonged course or recurrences and for cases of torpid cardiac disease with bouts of myocardial failure.

# Book Notices

**A-B-C's of Sulfonamide and Antibiotic Therapy.** By Perrin H. Long, M.D., F.R.C.P., Professor of Preventive Medicine, the Johns Hopkins University School of Medicine, Baltimore, Md. Cloth. Price, $3.50. Pp. 231. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; 7 Grape St., Shaftesbury Ave., London W.C. 2, 1948.

One of the most rapidly changing fields of medical practice is concerned with the use of sulfonamide drugs and antibiotics. While it was only a little over ten years ago that the first sulfonamide compound was introduced into medical practice in this country, this class of agents has received such wide acceptance that many persons seem to accept them more or less casually, as if they had been in existence for a lifetime. Thousands of compounds have been developed, but only a few have been found practical for introduction into medical practice. Nevertheless, these few have provoked practically untold wonders in the art of preventing and treating disease. Their status, however, does not remain static and almost overnight new claims are offered or old ones disputed. The same is true of the antibiotics. Not long ago penicillin was in such short supply that the medical profession was practically begging for the material; now it is plentiful. But in the meantime other antibiotics have made their appearance; for example, streptomycin, "chloromycetin," aureomycin and "polymyxin." Unless some means is provided for making available pertinent information in easily accessible form, existing confusion may be perpetuated. The book "A-B-C's of Sulfonamide and Antibiotic Therapy" provides a means for minimizing such confusion for the student and practitioner. It is a handy volume containing a wealth of material offered in a readable style and with a minimum of diverting generalizations. The book offers discussions on dosage of sulfonamide drugs and antibiotics according to their method of administration and other pertinent points that must be kept in mind by the prescriber, such as the possibility of drug resistance and the preparation of sulfonamide or antibiotic solutions for parenteral administration. In addition, the book provides a discussion of the clinical applications of sulfonamide compounds and antibiotic therapy in various diseases and conditions ranging from abscess to yaws. The author is to be commended for his practical presentation, and the student and practitioner would be well advised to have this handy little volume always accessible.

**Personal and Community Health.** By C. E. Turner, A.M., Ed.M., D.Sc. Eighth edition. Cloth. Price, $4. Pp. 565, with illustrations. C. V. Mosby Co., 3207 Washington Blvd., St. Louis 3. 1948.

This is a new edition, the eighth, of a book first published in 1925 which has become a standard college textbook of hygiene. The book is characterized by a comprehensive scope and complete treatment of its various topics. The chapters of Part I, on the health of the individual, deal respectively with hygiene and health, nutrition, digestion, oral hygiene, respiration, circulation, the kidneys, the skin, endocrines, the sense organs, hygiene of the nervous system, mental hygiene, narcotics and stimulants, the hygiene of body activity, body mechanics, foot hygiene, heredity and health, the hygiene of reproduction, and adult hygiene. It is a combined treatise on anatomy, physiology and hygiene, with practical sidelights, such as the use of blood plasma and how to take a sun bath without overdoing it.

Part II deals with community health, with chapters on the science of disease prevention; essential facts of immunity; alimentary and respiratory infections; contact and inoculation diseases; food control; water supply; waste disposal; ventilation, heating and lighting; public health administration; maternal and child hygiene; school hygiene, and industrial hygiene.

There are three appendixes dealing respectively with the details of the control of communicable diseases, with disinfection and disinfectants, and with prefixes, suffixes and combining forms. There are an excellent glossary and a good index.

The book is profusely illustrated with photographs, drawings and diagrams on almost every page. Always a standard textbook characterized by accuracy and reliability, this eighth edition surpasses previous editions in readability and in attractiveness. The latter is due largely to the illustrations, to an easy to read type face and good semigloss book paper. Each chapter has an extensive list of references.

**Bailey's Text-Book of Histology.** Revised by Philip E. Smith, Ph.D., Professor of Anatomy, College of Physicians and Surgeons, Columbia University, New York, and Wilfred M. Copenhaver, Ph.D., Associate Professor of Anatomy, College of Physicians and Surgeons, Columbia University. Twelfth edition. Cloth. Price, $7. Pp. 781, with 455 illustrations. Williams & Wilkins Co., Mt Royal & Guilford Aves., Baltimore 2, 1948.

This standard text shows the results of careful revision. Although the changes from the previous edition are considerable and inclusive of much new information, the original plan and mode of presentation are unchanged. It is intended for elementary students of medicine and dentistry but contains enough material to be useful for later years of the medical and dental curriculum. A commendable and reasonably successful attempt is made to integrate histology with border subjects such as gross morphology, embryology and physiology, but the book retains its essential character as a well written treatise of normal histology. Illustrations are numerous and mostly of excellent quality. Selected references are appended to each chapter. Although some of the older type face and cuts show considerable evidence of wear, the production of this book is of excellent quality. Its contents are recommended as rating with the best in the field.

**Pharmacology.** By J. H. Gaddum, Sc.D., F.R.S., M.R.C.S., Professor of Pharmacology in the University of Edinburgh, Edinburgh. Oxford Medical Publications. Third edition. Fabrikoid. Price, $8. Pp. 504, with 75 illustrations. Oxford University Press, 114 Fifth Ave., New York 11; Amen House, Warwick Sq., London E.C. 4, 1948.

Since its first revision this book has undergone a number of changes that have generally increased its usefulness. However, like others so commonly encountered today, it presents with too little criticism some views that may be currently popular but not supported by adequate evidence. For example, in the discussion of vtiamin E there is the statement:

"It has been shown to be essential for reproduction in rats, mice, rabbits, and hens. It is not definitely known whether other animals can suffer from deficiency of tocopherol, but favourable reports have been published on the use of wheat-germ oil to cure habitual abortion in women, sheep, cows, and pigs. It has been suggested that it might be used in the treatment of various diseases of muscles and nerves."

What is lacking is a statement to the effect that such claims have not been sufficiently substantiated for the medical profession to apply vitamin E therapy generally for these conditions. Since the book was written in the United Kingdom, it is not surprising to find thiamine hydrochloride referred to as "aneurine hydrochloride," which is British Pharmacopia terminology. Unfortunately, such British terminology is not always familiar to all students in the United States. With the rapid advancement of drug therapy it is necessary to have available as much information as can be gathered, and every book that contributes something to this information may be helpful to some one. The present book will unquestionably be read by the teacher and more searching students with this view in mind. However, it is not the type of book that can be recommended for medical students in American medical schools. It would, nevertheless, have a useful place in the libraries of medical schools and teachers, for those who might wish to make reference to it.

**Understandable Psychiatry..** By Leland E. Hinsie, M.D., Professor of Psychiatry, College of Physicians and Surgeons, Columbia University, New York. Cloth. Price, $1.50. Pp. 359. The MacMillan Company, 60 Fifth Ave., New York 11, 1948.

Dr. Hinsie has addressed his book, "Understandable Psychiatry," to the patient and the physician. This duality of purpose diminishes rather than enhances the value of the material to the patient because it has caused to be included highly technical vocabulary and comments which are of interest to the physician alone. The general orientation of the book is largely psychoanalytic. The case reports are interestingly and convincingly told, and represent a present trend in vivid presentation of material that formerly and in some quarters is still considered to be decidedly not therapeutically advisable or advantageous. The physician who is not a specialist has much to gain from the many clinical comments about human relationships with which Dr. Hinsie amplifies his case histories. The book certainly will serve to stimulate further interest in both the layman and physician in psychiatric treatment.

**Psychiatry: A Short Treatise.** By William A. O'Connor, L.M.S.S.A., D.P.M., Medical Superintendent, Ashwood House, Kingswinford, Staffs. Cloth. Price, $9. Pp. 380. Williams & Wilkins Co., Mt. Royal & Guilford Aves., Baltimore 2, 1948.

In his introduction to this volume the author states his intentions of writing a treatise on psychiatry which, though brief, would adopt an integrative and comprehensive approach to the subject. Unfortunately, those who have longed for just such a text will be somewhat disappointed by the chapters that follow. For here, implicitly and explicitly, are the old dualisms of "mind" and "body," the familiar misleading descriptions of "mental symptoms," the same stereotyped discussions of "interview technics" and the tired, sterile kraepelinian and kretschmerian classifications of the neuroses and psychoses. Similarly, the sections on treatment, though they take occasional cognizance of dynamic concepts of abnormal behavior, rarely succeed in presenting an adequate exposition of either the science or the art of modern psychiatric therapy. This inconsistency of formulation is particularly evident in the chapter on "Psychosomatic Disturbances in the Child"; here, an unwarranted emphasis on heredity and typology vitiates otherwise meaningful and sometimes penetrating discussions of the psychiatric and medical problems of childhood.

The volume is equipped with a glossary of rather unusual definitions (sample: "The Ego: that selective constituent of the Psyche which differentiates between stimulus reception and impulse discharge") and an overelaborate index; however, there is no reference bibliography. It must, in all fairness, be stated that in view of the difficulty inherent in writing a compendium in so complex a field, Dr. O'Connor has made a commendable first attempt. Nevertheless, the first edition of his book does not as yet fulfil the current need for an authoritative text on modern clinical psychiatry.

**Calcium and Phosphorus in Foods and Nutrition.** By Henry C. Sherman. Cloth. Price, $2.75. Pp. 176, with 7 illustrations. Columbia University Press, 2960 Broadway, New York 27, 1947.

Dr. Sherman, a recognized authority in the chemistry of nutrition, presents a concise and readable account of the roles which calcium and phosphorus play in human nutrition. The quantitative distribution of calcium and phosphorus in the body and in foods is given, along with the nutritional functions of these elements.

Keeping technical terms at a minimum, Dr. Sherman explains how passable health may be obtained with a daily intake of a minimal-adequate quantity of calcium in an otherwise adequate diet, while an increased calcium intake results in higher levels of health and efficiency and better prospects for longevity. Also included are the results of direct human experimentation as well as a great number of recent experiments on animals. The bibliography, consisting of more than 550 separate references, will enable one to pursue in detail any particular phase of interest.

This book should prove invaluable to teachers and workers in the field of nutrition.

**An Introduction to the History of Dentistry. Vol. I: With Medical and Dental Chronology and Bibliographic Data. Vol. II: An Introduction to the History of Dentistry in America.** By Bernhard Wolf Weinberger, D.D.S. Cloth. Price, $20 per set. Pp. 514, with 177 illustrations; 408, with 136 illustrations. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1948.

This history, presented in two volumes, records the origin and evolution of dentistry from its early beginning down through the eighteenth century. Its author spent over forty years in compiling his data, much of which he obtained from libraries, museums and antequarian societies in this and other countries. Readers will be impressed with the painstaking manner in which he has documented his material and with the fact that his careful research has uncovered new evidence on a few controversial subjects that will help correct some of the inaccuracies previously published. Throughout, the author has endeavored "to act as an interpreter or expositor of the best that has been thought and said upon the subject" rather than to set himself up as an authority. Despite this modest disclaimer, most readers will conclude that Dr. Weinberger has established himself as an able historian.

Volume I, entitled "An Introduction to the History of Dentistry," deals with ancient and medieval dentistry and is divided into three parts. Part one, consisting of fifteen chapters, describes the art and practice of dentistry in ancient Egypt, Assyria, Phoenicia, Greece and Rome. The five chapters in part two deal with dentistry during the medieval and Renaissance period, and the three chapters in part three discuss the growth of dental literature, the advent of scientific dentistry and the practice of dentistry during the eighteenth century.

Volume II, entitled "An Introduction to the History of Dentistry in America," consists of seventeen chapters. It reviews American dentistry from the early colonial period to about 1825. It contains a fund of interesting biographic data, some previously unreported, on early American dental pioneers such as Baker, Woofendale, Revere, Gordette and the Greenwoods. One complete chapter is devoted to the dental problems of George Washington.

This book is a distinct contribution to history. It is well written and profusely illustrated. The text and paper are pleasing. The casual reader may find the contents too detailed, but the student and historian will value and enjoy it.

**Treatment by Manipulation in General and Consulting Practice.** By A. G. Timbrell Fisher, M.C., M.B., Ch.B. Fifth edition of "Manipulative Surgery." Cloth. Price, $5. Pp. 275, with 126 illustrations. Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, 49 E. 33d St., New York 16, 1948.

The restoration of joint function by manipulation, in carefully selected cases, is outlined in detail. The indications and contraindications are stressed and manipulations based on sound anatomic and physiologic grounds are outlined. The author reviews the history of manipulative therapy and points out the general neglect of its principles by the medical profession. At the same time he castigates the cults which are based on such procedures to the exclusion of modern scientific knowledge. Specific manipulative therapy for each of the skeletal articulations is outlined. The dangers are emphasized and the limitations are acknowledged. It is interesting to note that the author does not advise manipulation in cases of herniation of the nucleus pulposus. He fails to outline the signs and symptoms which would differentiate the "disk syndrome" from other conditions low in the back which may benefit from manipulative therapy.

This treatise on manipulation of joints will interest orthopedic surgeons as well as others dealing with dysfunction of joints secondary to trauma or other factors.

**Take Off Your Mask.** By Ludwig Eidelberg, M.D. Cloth. Price, $3.25. Pp. 230. International Universities Press, Inc., 227 W. 13th St., New York 11, 1948.

This book presents a fairly accurate picture of preliminary interviews together with actual reproductions of the procedure and technic of psychoanalytic psychotherapy. Dr. Eidelberg is a well trained and experienced psychoanalyst. He is also a clever man. Readers may get the impression that the author stresses his cleverness and overdramatizes the situations presented. This may have been done deliberately to accentuate the reader's interest. The reader may also get the impression that considerably more movement occurs during single interviews than usually actually occurs. This may be the result of the author's desire to condense as much material as possible into this small volume. On the whole, this is an extremely interesting, well written book. It is probably the best of its kind to be released for the general public. It is recommended reading for every one interested in dynamic psychiatry.

**Psychology.** By William James. Introduction by Ralph Barton Perry, Professor of Philosophy, Harvard University, Cambridge, Mass. [Reprint.] Cloth. Price, $1.25. Pp. 478, with 66 illustrations. Published by arangement with Henry Holt and Company by the World Publishing Company, 2231 W. 110th St., Cleveland 2, 1948.

Any student of psychology who has not read the contributions of William James should certainly do so. Many of his observations are original and extremely enlightening. Students should at the same time be warned against concluding that James has said all there is to be said about human behavior. The writings of James have enjoyed great and lasting popularity. The present volume represents an abridgement of the author's larger work, entitled "Principles of Psychology," and as such fulfils its purpose extremely well.

# Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

## TREATMENT OF POLIOMYELITIS

*To the Editor:*—Please outline the best available treatment for poliomyelitis. Is penicillin or azosulfamide ("neoprontosil") intraspinally of any value? Urban H. Zee, M.D., Lamesa, Tex.

Answer.—The virus of poliomyelitis has never been demonstrated in the spinal fluid so that no intraspinal medication has been proved of any value, or is likely to be. Neither penicillin nor azosulfamide has any effect on the poliomyelitis virus. Many laboratories are attempting to find some antibiotic or chemical that will protect animals against infection with this virus, but none has yet been proved of any value either in the prevention or the treatment of poliomyelitis infections.

The best present day treatment consists of as complete rest as possible as long as there is fever, together with such supportive measures as 10 per cent dextrose solution intravenously and the relief of pain by means of hot packs and acetylsalicylic acid. Sedatives, enough to produce artificial sleep, are contraindicated because of the danger of breathing difficulties, requiring conscious effort on the part of the patient. After the fever has gone physical therapy is instituted to recover the full range of motion in all the joints, and then a process of reeducation is begun to teach the patients again to use their muscles properly. Later, exercising for increasing strength is undertaken and then functional exercising, followed by social rehabilitation.

## MERCURY IN SPERMATOGENESIS

*To the Editor:*—Does the inhalation of "ceresan" (Dupont), containing ethyl mercuric phosphate, with exposure four months of the year, have any effect on spermatogenesis? M.D., Pennsylvania.

Answer.—A degree of similarity exists in the action of lead, arsenic and mercury. Lead is well known to exercise a blastophthoric action and is characterized as a "race" poison. Arsenic has been suspected, but as to mercury there is little evidence of a specific blastophthoric action or any other action involving spermatogenesis. In well established intoxications from any metal, including mercury, with many manifestations, it would be reasonable to accept impaired spermatogenesis as one manifestation. However, any peculiar action of mercury limited to spermatogenesis and in the absence of other characteristic features may be doubted. It is known that in mercury poisoning acidosis may be a prominent feature. It has been assumed that in such circumstances the motility of the spermatozoa may be affected. Of greater importance is the fact that in mercury poisoning psychic manifestations are prominent. These disturbances include restlessness, irritability, fear, shyness, lack of concentration, lack of confidence and general depression. This being true, any disturbance in genital function probably may better be attributed to psychic impairments rather than to direct action on specific genital organs.

## ANTIHISTAMINIC DRUGS

*To the Editor:*—Please discuss the antihistaminic drugs and their side effects. M.D., Tennessee.

Answer.—A number of preparations having the ability to counteract the effects of histamine are available. The first one available on the American market was diphenhydramine hydrochloride N. N. R. ("benadryl hydrochloride," Parke, Davis & Company), closely followed by tripelennamine hydrochloride N. N. R. ("pyribenzamine hydrochloride," Ciba Pharmaceutical Company, Inc.). Since both of these preparations frequently produced undesirable side actions, principally drowsiness, a large number of related compounds have been synthesized and studied. Among the preparations said to have fewer untoward effects are "antistin" (2-[N-phenyl-N-benzylaminoethyl] imidazoline) (Ciba), "chlorothen" (N,N-dimethyl-N′-[2-pyridyl]-N′-[5-chloro-2-thenyl]- ethylenediamine hydrochloride) and "bromothen" (N,N-dimethyl-N′-[2-pyridyl] -N′-[5-bromo-2-thenyl]-ethylenediamine hydrochloride) (American Cyanamid), "decapryn succinate" (dimethylaminoethoxy-methylbenzyl-pyridine succinate) (Wm. S. Merrell Company), "diatrin" (N,N-dimethyl-N′-phenyl-N′-[2-thienylmethyl]-ethylenediamine monohydrochloride) (William R. Warner & Co., Inc.), "histadyl" (thenylpyramine hydrochloride) (Eli Lilly & Company), "neoantergan" (N-p-methoxybenzyl-N-dimethylaminoethyl-α-aminopyridine) (Merck & Co.), "neohetramine" (2-[N-dimethylaminoethyl-N-*p-methoxy-benzyl* aminopyrimidine monohydrochloride) (Wyeth, Incorporated), "thephorin" (2-methyl-9-phenyl-2,3,4,9 tetrahydroindeno [2.1-c] pyridine) (Hoffmann-LaRoche, Inc.), "thenyllene" (methapyrilene hydrochloride) (Abbott Laboratories) and "trimeton" (prophenpyridamine) (Schering Corporation). Usually, however, therapeutic efficacy decreases as the side actions are diminished.

According to Feinberg (J. A. M. A. **132**:702, 1946) tripelennamine hydrochloride appears to have the greatest potency with the least undesirable effects. Comparisons of the newer agents have not been published, and it is not possible to state with certainty which compound has the greatest therapeutic index.

Although a number of toxic reactions have been reported following the use of antihistaminic agents (drug fever, nausea, dizziness, gastrointestinal disturbances), these are infrequent and probably represent an individual idiosyncrasy on the part of the patient. Most consistent reactions noted are drowsiness and excessive perspiration. It is advisable to use the lowest dose which will control symptoms, since these reactions appear to be a function of the dose administered.

## SULFONAMIDE AGRANULOCYTOSIS

*To the Editor:*—An article by C. A. Janeway in the March 8, 1941 issue of The Journal, page 941, states that para-aminobenzoic acid neutralizes the inhibitory effect of sulfonamide drugs in blood cultures. Could this be used to treat agranulocytosis caused by excessive doses of sulfonamide drugs? O. B. McCoy, M.D., Harrison, Ark.

Answer.—There are numerous reports on the effects of para-aminobenzoic acid in relation to the bacteriostatic action of sulfonamide drugs. However, this drug is not indicated in the treatment of agranulocytosis. In fact such a condition may be caused by the use of para-aminobenzoic acid. Menten and Graff (*Am. J. M. Sc.* **211**:672-679, June 1946) reported on the treatment of 23 patients who had granulocytopenia associated with the use of sulfonamide drugs. They administered folic acid and pyridoxine hydrochloride. Minot and Castle (Year Book of General Medicine for 1947, Chicago, Year Book Publishers, 1947, p. 436), commenting editorially on the abstract of this report, stated: "The difficulty of determining the effectiveness of therapeutic measures in sulfonamide neutropenias is manifest if one appreciates that there is convincing evidence that if (1) the offending drug is stopped, (2) no specific treatment is given and (3) the patient survives, a recrudescence of granulocytes usually occurs."

## TETRAETHYLAMMONIUM CHLORIDE

*To the Editor:*—An article in the *Cleveland Clinic Quarterly,* **15**:90-91, 1948, describes beneficial effects of early treatment of multiple sclerosis with tetraethylammonium chloride. This drug is advertised as being effective in blocking off autonomic impulses from autonomic ganglia in peripheral vascular disease. What is the efficacy of this drug in the treatment of multiple sclerosis? L. A. Cibelli, M.D., Roanoke, Va.

Answer.—Use of tetraethylammonium chloride in multiple sclerosis is based on the theory that the disease is caused by local vascular obstruction due either to spasm of the arterioles or to actual thrombosis. Agents such as the nitrites, papaverine, histamine and aminophylline have been used to combat vasoconstriction. "Dicumarol" has been used to prevent thrombosis. Although temporary beneficial effects have been noted with all of these agents none has been studied for sufficiently long periods for final evaluation. An excellent review of the diagnosis and treatment of multiple sclerosis was published in The Journal, Nov. 1, 1947, page 569, and the various theoretic considerations underlying the proposed treatments were outlined.

Evaluation of therapeutic agents in this disease is extremely difficult and patients must be followed for long periods of time before conclusions regarding the efficacy of any remedy can be drawn. Tetraethylammonium chloride has not been used in a sufficiently large number of cases under controlled periods nor have patients been observed for sufficiently long periods of time to warrant any valid conclusions.

Tetraethylammonium chloride is potentially toxic, and unpleasant. Dangerous side actions are frequently noted. Postural hypotension and effects on the gastrointestinal tract are particularly disturbing.

## PSYCHONEUROTIC VOMITING

*To the Editor:*—A 33 year old ribbon factory worker and father of three children has complained of "morning sickness" for eight years. He first began to be bothered while his wife was pregnant with their first child. She was not particularly bothered by morning nausea or vomiting. Mornings when he arises for work he is invariably seized with a sudden and passing wave of nausea and vomits a small amount of clear white to yellow bitter material. This occurs after he has been up for ten to fifteen minutes. On some occasions he has been able to eat before he vomited and he then brought up food just eaten. If he sleeps beyond 9 or 10 a. m. this difficulty does not occur. In the Navy, where he served during 1944-1945, he was studied without success in finding apparent physical or emotional cause for his complaint. All treatment has been unavailing. His weight has increased 10 pounds (4.5 Kg.) since onset of his difficulty in 1940. He has no nausea or vomiting at other times. In all other respects he is robust, healthy and well adjusted. Please suggest diagnosis and treatment.

Jesse Schulman, M.D., Belvidere, N. J.

ANSWER.—The history and absence of physical findings over a period of eight years suggest that the causation of this patient's illness is psychologic. A monosymptomatic complaint in psychoneurotic reactions of this duration is, however, rare. Recurrent early morning vomiting of an unchanging quality for a number of years without loss of weight, pain or anorexia is not indicative of a progressive lesion. Congenital or developmental defects such as diverticulum of the esophagus, diaphragmatic hernia, hypertrophy of the ligament of Treitz, compression of the duodenum by the superior mesenteric vessels or other gastrointestinal pathologic condition which causes reflex vomiting have apparently been excluded.

Medical practitioners have long recognized that the expectant father as well as his wife may suffer with morning sickness. Our information about the male's physiologic and psychologic responses to the information that he is to become a father is circulated chiefly at the anecdotal level; medical documentation, except in a few psychiatric texts and journals, is meager.

The psychologic difficulties of patients who have recurrent morning vomiting are not always on a conscious level and may be difficult to elicit by the ordinary methods of medical history taking. It is not essential that the wife be troubled with nausea and vomiting associated with early pregnancy. Male patients who present this particular complaint may have strong needs for dependency and are often submissive, propitiative, timid and unable to express appropriate degrees of aggressiveness or hostility except through their symptoms. The essential psychologic mechanisms which serve to disguise their dependent needs are identification and imitation.

The corroborative evidence required for concluding that a patient falls into this category of psychoneurosis must be derived from the evaluation of his attitudes toward himself, his wife, childen, parents, friends, co-workers and supervisors. The symptoms which usually accompany the presenting complaint are: feeling of tension, tremulousness, easy irritability and mild mood changes of a depressive quality. Treatment must be directed toward the patient's total life situation. Direct attempts to alleviate the presenting complaint are usually not successful unless a combination of experiences and events alters the patient's attitudes toward the precipitating factor, namely, the wife's pregnancy. The fact that the difficulty in this patient has persisted for eight years indicates the severity of the patient's psychologic problems.

## PARKINSONISM

*To the Editor:*—Is there a new treatment for parkinsonism? My father, aged 75, has suffered for a year with parkinsonism, probably based on cerebral arteriosclerosis. He had bronchial asthma for many years with frequent bronchiopneumonia, emphysema, bronchiectasia and from time to time slight cardiac decompensation. Blood pressure is 90 systolic and 45 diastolic. For the parkinsonism he receives atropinester[?], tincture stramonium and scopolamine hydrobromide (alternately adding 20 drops daily); at noon ½ tablet of "novydrine" (brand of amphetamine sulfate) and a sedative are administered. Improvement was unsatisfactory and the illness is progressive. Please give an exact schedule for these remedies and advise other treatment.

George Stein, M.D., Palestine.

ANSWER.—New treatment of value for parkinsonism is lacking. The remedies which have been used in this case, or other closely related drugs, are still the best treatment available. Nothing will prevent the natural progress of the disease. Usually the most effective remedy is scopolamine hydrobromide. Treatment is best started with 1/150 grain (0.4 mg.) three times a day, gradually increasing the dose and the frequency of administration until as much as 1/100 grain (0.6 mg.) five times a day is being taken. Some patients will not tolerate this much, and the dose has to be reduced accordingly. It should be borne in mind that a few patients have an idiosyncrasy for the drug and have mental confusion, delusions and hallucinations as a result of its use. This is most likely to occur in elderly patients. Tincture of stramonium may be used if scopolamine is not well tolerated but generally is less effective. Stramonium therapy is usually started in doses of 10 to 15 minims (0.62 to 0.93 cc.) three times a day and the dose gradually increased to as much as 60 minims (3.7 cc.) three times a day if the patient will tolerate it. Belladonna tincture commonly gives rise to more undesirable side effects than do the other two drugs. It is given in doses of 5 to 15 minims (0.3 to 0.93 cc.) three times a day. In recent years various preparations of belladonna root in wine and of dried extract of the belladonna root have found favor and received much unwarranted publicity. These preparations vary so widely, even in the United States, and far more the world over, that it would be impossible to recommend any particular preparation or to supply details as to dosage. In general, it may be stated that these various preparations of belladonna root seem to be more effective in cases of parkinsonism resulting from chronic encephalitis than in those forms which develop as the result of a primary abiotrophy or from cerebral arteriosclerosis. Sedatives may be used in cases of parkinsonism as they would be in any conditions requiring them. The dosage, of course, depends on the drug used. No particular sedative is more useful in cases of parkinsonism than is any other. In general, bromides are undesirable in elderly persons.

## AMEBIASIS IN ANIMALS

*To the Editor:*—In a recent lecture on colitis at New York Hospital the speaker recounted hearing a paper from the London School of Tropical Medicine on the synergistic action of Endamoeba histolytica and bacterial flora existing in the intestinal tract of mice. One set of mice (the controls) received an injection of a pure culture of E. histolytica; 100 per cent became infected. Another set of mice were given sulfadiazine before the amebas were injected. Sulfadiazine, by combating the secondary organisms in the intestinal tract, was said to prevent infection by amebas from taking place. His final conclusion was that E. histolytica needs the synergistic presence of intestinal bacteria in order to gain a foothold in the intestinal wall and survive. An interesting question presents itself: Since the mouse was 100 per cent susceptible to the disease when inoculated with the organism, why not use the mouse as the means of detection? The *Tropical Diseases Bulletin,* January 1948, page 78, states: "It has been shown that strains derived from different sources vary in their infectivity for the rat and that pathogenicity does not depend on the number of amoebae injected, or on the severity of the human infections from which they were derived. It has been shown that a strain from a symptomless carrier will produce severe lesions in the rat's caecum." Has such a clinical test been described in the literature?

A. H. Karam, M.D., New York.

ANSWER.—The questioner refers to mice in the first half of his discussion and then cites an article in which rats were used. Examination of the available literature on the subject has failed to disclose studies with mice. The infectivity of rats is variable. Jones (*Trop. Dis. Bull.* **44**:313-314, 1947, injected culture material rectally or intracecally after laparotomy into 46 three month old rats and failed to produce infection, though purging, starving, modification of diet and occlusion of the anus were tried. Better results were obtained by first establishing an infection in kittens by rectal injection of culture material and then inoculating the dysenteric stools of the kittens intracecally into 3 to 4 week old rats. Cultures of E. histolytica mixed with mucin produced infection, as did the material from the kittens. Only a small proportion of the rats showed obvious clinical signs of infection, and certain rats with massive ulceration of the cecum appeared normal clinically. The infection in rats is not readily detected by direct microscopic examination or culture of the feces. Many other investigators have succeeded in infecting the white rat, including Nagahana (1934), Takemura (1934) and Tanabe (1934). Atchley (1936) infected laboratory rats with strains of E. histolytica obtained from man and from naturally infected rats, but no lesions were observed in the animals. Kitabatake (1934) obtained infections in 64.1 per cent of 160 rats given rectal injections of material containing a strain of E. histolytica pathogenic for kittens. No dysentery symptoms appeared, but the stools became soft and scar tissue was found in the bowel.

Other animals infected with E. histolytica include the dog, cat, monkey, guinea pig and domestic pig. In dogs the infection runs a course similar to that in man. In cats, the infection is usually acute; half-grown kittens are the most susceptible to infection, which is followed by a severe and usually fatal dysentery. Some strains of E. histolytica possess only a low degree of virulence for kittens. Susceptibility in kittens was found by Kessel (1928) to be 60 per cent with amebas from acute amebic dysentery, and 49 per cent with amebas from carriers. Meliney and Frye (1937) studied the pathogenicity of cultures of E. histolytica injected into the ileum of kittens. The percentage of kittens becoming infected ranged from 20 per cent with a strain isolated in Tennessee to 90 per cent with a strain isolated in the Chicago outbreak. Chang (1945) distinguishes between infectivity and pathogenicity of E. histolytica for kittens with ligated anus. He found that loss of infectivity correlated with cessation of encystment in culture and that power of infectivity could be regained by inducing encystment.

With these considerations, the use of animal inoculation as a laboratory test for the diagnosis of amebiasis does not seem to hold promise. Conventional laboratory technics for identification of E. histolytica by a competent parasitologist are satisfactory in a high percentage of patients.

## HORMONE THERAPY

*To the Editor:*—A white married woman, aged 34, *para 1, gravida 1, first* came to me in February 1947, complaining of infertility. The history and physical examination were essentially negative. The basal metabolic rate was minus 15 per cent. Routine laboratory studies did not reveal any abnormality. Examination of the husband's seminal fluid revealed a volume of 3.5 cc. and a sperm count of 70,000,000 per cubic centimeter, with over 90 per cent normal forms and over 90 per cent motility. The previous child was a product of a former marriage. Her second marriage occurred in November 1945. She was referred to a gynecologist in April 1947. His examinations, including the Rubin test, failed to reveal any abnormality. She was placed, *at his suggestion,* on "premarin" (estrogenic substances), 1.25 mg. daily for ten days. Subsequently, she missed her next three menstrual periods, which had previously been at twenty-eight day intervals, regular, painless and of moderate three to four day flow. She had normal periods on Aug. 8 and Sept. 6, 1947. The gynecologist then suggested she be given estrogenic substance ("estrusol," 20,000 units per cubic centimeter suspension), 10,000 units intramuscularly once per week for six weekly injections. The patient has not menstruated since last menstrual period Sept. 6, 1947. She was given a course of treatment with progesterone, 5 mg. every other day for five doses. She was again seen by the original gynecologist, who suggested administration of "synapoidin" (pituitary chorionic gonadotropins), 15 units per cubic centimeter, 1 cc. every other day for five days, then 5 mg. of progesterone every other day for five days. This course was completed in April 1948. In late May she made a trip to Southern California, where she was seen by another gynecologist, who reported that the Shorr differential stain revealed pronounced estrogenic deficiency. The second gynecologist began treatment with thyroid, 1 grain (0.065 Gm.) daily, to be increased to 2 grains (0.13 Gm.) daily in two weeks if objective and subjective symptoms did not appear. At present her major interest, of course, is reestablishment of menses if possible. Can you give any suggestions?

M.D., California.

Answer.—It is unfortunate that this patient, like many others, was given estrogens and other hormones without rhyme or reason. The "premarin" which was administered when the patient menstruated regularly could not have helped her to conceive. Likewise the "estrusol" could not have had any beneficial effect. The "premarin" apparently produced temporary amenorrhea, and the "estrusol" was followed by a cessation of menstruation which has lasted more than nine months. Surely these hormone products have not helped the patient to become pregnant, but on the other hand, they most likely suppressed ovulation. "Synapoidin" and progesterone, too, are rarely useful in helping women to menstruate regularly or to conceive. The only abnormality shown by this patient is a slightly lowered basal metabolic rate. Thyroid extract should be given as suggested by the second gynecologist. In cases of definite hypothyroidism, thyroid extract will more often bring about reestablishment of menstruation and permit pregnancy than all the other hormones. Thyroid therapy should be continued for at least four months. In view of the fact that the patient is now 34 years old, if thyroid therapy is not followed by a gestation after four months, roentgen therapy should be applied to the pituitary gland, but only by someone skilled in this form of treatment.

## ALUMINUM FOIL IN TREATMENT OF BURNS

*To the Editor:*—An article appeared in the *Cleveland News* August 4, 1948, entitled "First Use of Aluminum Foil Saves Life of Burned Victim." Have you any information on this treatment?

J. B. Jack, M.D., Chicago.

Answer.—For many years there has been a search for some magic application that would solve the problem of the acute burn. Recently a great deal of sound investigative work has been done which has shown the many physiologic complications that attend the acute burn. For the first time the problem in its entirety is becoming clarified. It is obvious that the drug or material applied to the surface of the burn is probably the least important detail in the complex task of managing a burned patient. Whatever the topical agent is, it must not adhere to the wound, as does coarse mesh gauze; must not seal in infection, but permit easy removal in case of pus formation underneath; it should not be toxic, nor cause further destruction of epithelial remnants, and it should not produce pain. If aluminum foil fulfils these needs and is simply considered as one small step in the treatment of the burned patient, it would probably be as satisfactory as some of the other agents that meet reasonably well these same requirements which have been in use for some years.

## "DICUMAROL" IN CORONARY THROMBOSIS

*To the Editor:*—In using "dicumarol" in coronary thrombosis with infarction, several investigators have reported serious bleeding even though prothrombin levels have been within the prescribed limits. At other times bleeding did not occur when the prothrombin dropped to low levels. Do other factors beside the prothrombin level determine whether bleeding will occur? Is it advisable to give rutin with the "dicumarol" in order to overcome increased capillary permeability, which may be a causative factor in those patients with serious bleeding?

*Israel Pine, M.D., Belle Harbor, N. Y.*

Answer.—The goal of "dicumarol" therapy for the prevention or treatment of phlebothrombotic complications is reduction of circulating prothrombin to a level where intravascular clotting is prevented or stopped, yet not to the point where hemorrhage is likely to ensue. Experience indicates that when prothrombic activity is above 20 per cent of normal, hemorrhage is rarely, if ever, due to deficiency of prothrombin, its activators or fibrinogen. This corresponds to a prothrombin time below 30 to 40 seconds obtained with a potent thromboplastin preparation which for normal plasma will give a prothrombin time of 12 to 14 seconds.

Prothrombin activity is only one factor which operates in the over-all hemostatic mechanism. Other factors which must be considered in explaining a hemorrhage are the state of the vascular tree and the quantity and quality of blood platelets. It is conceivable that reducing plasma prothrombin activity to levels which ordinarily would not induce hemorrhage in persons with otherwise normal hemostatic function may result in hemorrhage when other hemostatic mechanisms are simultaneously disturbed. Accordingly, it is desirable to make sure that patients receiving "dicumarol" have a hemostatic mechanism normal in all other respects. The value of rutin in the maintenance or restoration of normal capillary function is still debatable. Prevention or therapy of any hemorrhagic incident must be based on elucidation of the underlying defect in hemostasis.

## HEMIHYPERHIDROSIS

*To the Editor:*—Please discuss causes, significance and relationship of unilateral sweating of the right side of face, moderately profuse, otherwise unexplained, occurring in a white man, aged 59, who had coronary occlusion in 1945. Since then he has had occasional precordial disturbance pain or tightness, dyspnea on exertion, blood pressure of 135 to 160 systolic and 70 to 80 diastolic, pulse rate of 64, temperature of 98.6 F., and a constant weight of 150 to 152 pounds (68 to 68.9 Kg.). Medication has been symptomatic—phenobarbital ¼ grain (15 mg.) three times a day; "theacitin" (theophylline sodium acetate), occasionally mannitol hexanitrate and low salt diet.

M.D., Indiana.

Answer.—Hemihyperhidrosis of the face of the type described is encountered occasionally with organic lesions involving the autonomic innervation to this area. Sometimes it is the peripheral mechanism that is involved, as in the case of the auriculotemporal syndrome, but more often the damage lies in the central autonomic centers of the brain stem, usually small focal lesions in the lateral portion of the medulla oblongata, the tegmentum of the pons or the hypothalamus. The nature of the pathologic changes varies. Congenital developmental anomalies, the gliosis of syringomyelia, tumors and small granulomas and vascular lesions are among the commonest causes. It would seem probable that in this case a minute infarct from thrombotic occlusion of a sclerotic artery in the brain stem is responsible for the condition. If the symptom is very troublesome one might carry out a procaine block of the cervical sympathetic segment in order to determine whether cervical sympathetic paralysis is effective in abolishing the sweating. If so, a more complete and permanent block or section might be considered.

## AMPHETAMINE SULFATE PREPARATIONS

*To the Editor:*—What ill effects are reported from use of d-amphetamine sulfate ("dexedrine") or racemic amphetamine sulfate ("benzedrine") in treating obesity, narcolepsy and sea sickness? What is the maximum dose?

M.D., Alabama.

Answer.—"Dexedrine" and "benzedrine sulfate" have the same actions and toxic effects. In overdosage, a rise of blood pressure, nervousness, tremors, sweating, palpitation and increased respiration may be noted. The dosage required to produce these effects varies with the individual and with his physiologic state. It is unlikely that any of the three conditions mentioned would modify significantly the toxic actions of this drug. Although toxic reactions have been noted with doses as low as 5 mg., the usual maximum dose is stated to be 15 mg. Except in severe narcolepsy it is seldom necessary to administer more than 2.5 to 5.0 mg. as a single dose and the dose should not be repeated oftener than every four hours

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## POSTPHLEBITIC SEQUELAE

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and
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New Orleans

Within the past decade many investigations have been made and much has been written concerning venous thrombosis, but relatively little attention has been paid to the sequelae of venous clotting. Without question the best treatment of the complications and sequelae of thrombophlebitis and phlebothrombosis is prophylaxis, i. e., the adequate and prompt therapy of the originating venous lesion. Unfortunately, however, some patients are not seen at the time of their original venous lesion and there are many in whom appropriate therapy is not instituted promptly enough. From our clinical and experimental investigations, we are convinced that it is necessary to differentiate between two types of venous thrombosis, which differ from each other as much as night from day.[1] Although both have in common a clot within the vein, they are dissimilar from etiologic, pathologic, clinical, prognostic and therapeutic points of view, and, unless the clinician who is treating a patient with venous thrombosis differentiates between the two types, ineffectual results are likely. Although it is not the purpose of this presentation to discuss venous thrombosis per se, in order to understand the sequelae of the two types, thrombophlebitis and phlebothrombosis should be defined. Thrombophlebitis has been known for many years. In fact, it was recognized by the ancients and was designated as phlegmasia alba dolens. As the name implies, there is an inflammation of the vein wall. This results either from bacterial invasion of the vein wall or from toxins carried to the vein through the perivenous lymphatics. The inflammatory changes in the wall of the vein produce a white thrombus which is firmly attached to the vein. Because of the firm attachment of the thrombus, unless there is suppuration which results in the liquefaction of the clot, there is little or no danger of embolism in true phlegmasia alba dolens. The symptoms, however, are pronounced. The patient complains of severe pain. There is swelling of the extremity, and there is fever. Although there is little danger as regards life, persistent sequelae develop unless adequate appropriate therapy is instituted early. On the other hand, phlebothrombosis has been recognized only relatively recently, and there has been much confusion about its differentiation from thrombophlebitis. The clot in phlebothrombosis is a nonadherent coagulum and is similar to that which forms in a test tube when blood is allowed to clot. It occurs not because of changes in the venous endothelium, but because of increased coagulability of the blood and the precipitating factor of circulatory stasis. The predisposing factor, increased blood coagulability, is due to changes in the blood constituents resulting from tissue injury. Because of the precipitating factor, circulatory stasis, phlebothrombosis occurs almost without exception in the veins of the lower extremities, where stasis is greatest. The patient with phlebothrombosis has few or no clinical manifestations. He may complain of a sense of impending disaster. There is usually tachycardia, with no commensurate rise in the temperature. Almost invariably, there is an increased erythrocytic sedimentation rate. Because of the absence of symptoms, the condition is likely not to be diagnosed unless the clinician is cognizant of its possible occurrence and examines for confirmatory signs. These signs are vein tenderness, particularly the veins of the calf muscles and on the plantar aspect of the foot, and pain in the calf or popliteal space when the foot is forcefully dorsiflexed (Homans' sign). In contrast to the absent or minimal clinical manifestations, the dangers in phlebothrombosis are considerable; in fact, death may occur. Because of this, there is great urgency for radical therapy in order to prevent the detachment of the clot which is not fixed, but which can be readily detached with the production of small or massive pulmonary emboli. As mentioned previously, the prompt recognition and the institution of adequate therapy early in the course of the disease process are of importance in both types of venous thrombosis. Not only can the process be stopped and resolution obtained in a relatively short period of time, but the undesirable sequelae which may produce death or cause chronic invalidism can be prevented.

### TREATMENT

*Embolism.*—Although the prophylactic therapy of embolism in phlebothrombosis is the ideal method of treatment and consists either of ligation of the vein proximal to the thrombus or thrombectomy and ligation before the clot has become detached, many times phlebothrombosis is not recognized until after embolism has occurred. The active therapy of a pulmonary

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From the Department of Surgery, School of Medicine, Tulane University of Louisiana, the Charity Hospital of Louisiana, and the Ochsner Clinic, New Orleans.

[1] (*a*) Ochsner, A., and DeBakey, M.: Thrombophlebitis and Phlebothrombosis, South. Surgeon **8**:269, 1939. (*b*) Ochsner, A.: Thrombophlebitis, editorial, Surgery **6**:129, 1939. (*c*) Ochsner, A., and DeBakey, M.: Therapy of Phlebothrombosis and Thrombophlebitis, Arch. Surg. **40**:208 (Feb.) 1940; (*d*) Therapeutic Considerations of Thrombophlebitis and Phlebothrombosis (Shattuck Lecture), New England J. Med. **225**:207, 1941; (*e*) The Significance of Phlebothrombosis and Thrombophlebitis in Orthopedic Surgery, J. Bone & Joint Surg. **23**:788, 1941; (*f*) Intravenous Clotting and Its Sequelae, Surgery **14**:679, 1943; (*g*) Thrombophlebitis and Phlebothrombosis, in Lewis, D.: Practice of Surgery, Hagerstown, Md., W. F. Prior Company, Inc., 1944, vol. 12, chap. 5B. (*h*) Ochsner, A.: Venous Thrombosis, J. A. M. A. **132**:827 (Dec. 7) 1946.

embolism depends largely on the size of the embolus. In massive embolism with obliteration of considerable portions of one or both pulmonary arteries, the prognosis is extremely grave and energetic radical therapy is necessary. Gibbon[2] has shown that if the lumen of the pulmonary artery is decreased to 15 per cent or less of its original size death occurs. There is considerable evidence that the severe symptoms associated with massive pulmonary embolism are only in part due to the plugging of the lumens of the pulmonary arteries, but also due to spasm of the uninvolved pulmonary vessels. Because of this possibility, measures to relieve spasm are of importance. As emphasized by Jesser and deTakats,[3] the intravenous administration of papaverine and atropine, because of their antispasmodic effects, is beneficial. Likewise, procaine hydrochloride anesthetization of the cervicodorsal sympathetic ganglions is frequently life saving, because of its vasodilating effect. The administration of high concentrations of oxygen by inhalation is imperative, in order to improve respiratory and cardiac functions. The prompt administrations of anticoagulants, preferably heparin because it is much more readily controlled, is desirable in order to prevent propagation of a thrombus in the pulmonary vascular bed.

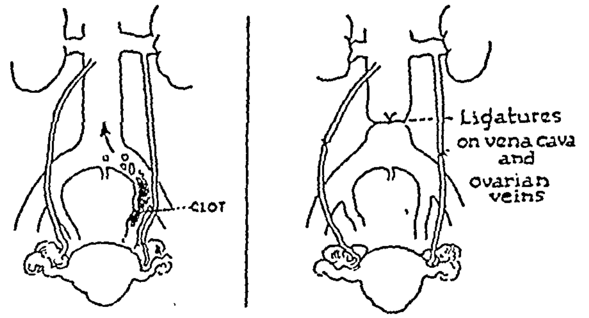

Fig. 1.—Diagrammatic representation of treatment of suppurative thrombophlebitis originating in a septic uterus. In order to prevent entrance of the septic emboli into the systemic circulation, ligation of the vena cava and the two ovarian veins is done. In this way, the transportation of the septic emboli to the lungs and the systemic circulation is prevented.

Although embolectomy, as originally suggested by Trendelenburg, was rather popular several decades ago; now it is infrequently used. The number of patients who have been saved by this heroic procedure is so small that it offers relatively little in the treatment of pulmonary embolism. Certainly one is not justified in watching the patient who has had one or more nonfatal infarctions until fatal embolism occurs, as has been suggested and practiced by continental surgeons. In such an instance, it is far better to prevent further pulmonary embolism by the thrombectomy or ligation of the vein in which the thrombus is located. As previously emphasized by us,[1h] there is no other condition except hemorrhage which takes precedence over phlebothrombosis as regards urgency of therapy, because of the possible dangerous sequelae.

Pulmonary Embolism: In most cases of pulmonary embolism, a fatality does not occur with the first embolism; in fact, according to Barker, Nygaard, Walters and Priestley[4] only 24 per cent of pulmonary embolisms are fatal within the first attack. According to Zink,[5] 70 per cent of patients with fatal pulmonary emboli have had an antecedent infarction. As emphasized by Barker and his co-workers,[4] the occurrence of multiple episodes of pulmonary embolism terminates fatally in about 60 per cent of patients. They also found that in all cases of fatal embolism the final attack was preceded by one or more nonfatal attacks in 36 per cent. In nonfatal pulmonary infarctions, the clot is smaller, producing obstruction in the smaller branches of the pulmonary artery. This results in infarction of the lung, which is of importance not only because of its associated pneumonitis but also because of the warning that the patient has a focus from which emboli can originate and can end in fatal embolism.

*Septic Infarction and Septicemia.*—Whereas embolism is usually the result of phlebothrombosis and is rarely seen in thrombophlebitis, it can occur exceptionally as a sequel to the latter condition. Most emboli complicating thrombophlebitis are the result of suppuration. The liquefying action on the clot of suppurative process loosens the otherwise firmly attached thrombus and permits its detachment. This sequel is particularly dangerous not only because of the development of embolism, but also because the embolus is infected resulting in septic infarction of the lung and possibly septicemia. We have had opportunity to observe a rather large number of such cases in the Charity Hospital in New Orleans, most of them being cases of suppurative thrombophlebitis of the pelvic veins resulting from criminal abortion. Neuhof and Seley[6] reported 93 cases of acute suppurative phlebitis complicated by septicemia and emphasized the fact that in most cases there was a demonstrable suppurative or acute inflammatory process in the immediate vicinity of large venous radicles. Twenty-one per cent complicated otitic infections; 20 per cent originated in areas drained by the portal system, and 46 per cent originated in the extremities and neck. It is of interest that 6 cases (6.4 per cent) followed cut down intravenous infusion or prolonged intravenous infusion at a single site. Suppurative thrombophlebitis is a condition which is extremely serious because of its potentialities. Although if untreated the condition is usually fatal, death is not the result of massive pulmonary embolism as in phlebothrombosis, but is from sepsis. In order to prevent the systemic invasion by septic emboli, ligation of the veins proximal to the suppurative thrombophlebitic process or excision of the involved segment of vein is imperative. As demonstrated by Collins,[7] Professor of Gynecology at Tulane, the patient suffering from suppurative thrombophlebitis of the pelvic veins complicating septic abortion is best treated by ligation of the inferior vena above its bifurcation and ligation of both ovarian veins (fig. 1). Although previously the mortality rate from such a lesion was extremely high, it is now low. Zaufal,[8] in 1880, was apparently the first to treat suppurative thrombophlebitis by vein ligation when he ligated the internal jugular vein in a patient with an infection of the internal ear, resulting in a sinus thrombosis. As early as 1901, Viereck[9] showed statistically the value of vein ligation in such cases. In a collected series of 108 cases, 89 patients recovered. Collins[10] and his associates ligated the inferior vena cava and ovarian veins in 28 patients for suppurative thrombophlebitis with suppurative thrombophlebitis of the pelvic vein, with only 5 fatalities. On the surgical service we have performed five inferior vena caval ligations of suppurative pelvic vein thrombophlebitis originating in the lower extremities, with no fatalities. By the prompt proximal ligation in suppurative thrombophlebitis not only recurrent septic infarction but also sepsis will be prevented. After vein ligation the administration of bacteriostatic agents will control the pneumonitis resulting from septic infarction. However, occasionally, an abscess of the lung will develop in the infarcted area, which may require drainage.

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[2] Gibbon, J. H.: Pulmonary Embolism: A Review of Recent Contributions, Pennsylvania M. J. **13**: 2654, 1939.

[3] Jesser, H. H., and deTakats, G.: The Bronchial Factor in Pulmonary Embolism, Surgery **12**: 541, 1942.

[4] Barker, N. W.; Nygaard, K. K.; Walters, W., and Priestley, J. T.: A Statistical Study of Postoperative Venous Thrombosis and Pulmonary Embolism: Predisposing Factors, Proc. Staff Meet., Mayo Clin. **16**: 17, 1941.

[5] Zink, K. H., cited by Aschoff, L.: Ueber Thrombose und Embolie, Wien, klin. Wchnschr, **51**: 1277, 1938.

[6] Neuhof, H., and Seley, G. P.: Acute Suppurative Phlebitis Complicated by Septicemia, Surgery **21**: 831, 1947.

[7] Collins, C. G.; Jones, J., and Nelson, E.: Surgical Treatment of Pelvic Thrombophlebitis: Ligation of Inferior Vena Cava and Ovarian Veins, New Orleans M. & S. J. **95**: 324, 1943. Collins, C. G., and Nelson, E.: Phlebothrombosis and Thrombophlebitis in Gynecology and Obstetrics, Am. J. Obst. & Gynec. **52**: 946, 1946.

[8] Zaufal, H.: Sinus thrombose, Prag. med. Wchnschr. **5**: 517, 1880.

*Coagulation Thrombus.*—An even rarer type of embolism occurring in thrombophlebitis is the coagulation or red thrombus, which occurs in the vein proximal to the thrombophlebitic segment and which results from inadequate therapy during the acute stage of thrombophlebitis. If a patient with acute thrombophlebitis is kept quietly in bed, there is a possibility of a coagulation thrombus developing in the segment of vein between the area of thrombophlebitis and the next venous tributary. Although this is a coagulation thrombus, not attached to the vein wall and not likely to become detached, it is of short length and, even should it become detached, is likely to produce minimal manifestations. This coagulation thrombus can be prevented, however, by mobilization of the patient during the treatment of the acute thrombophlebitis. In addition to the pneumonitis associated with nonfatal pulmonary infarction, another possible complication of embolism which occurs infrequently is pulmonary arterial fibrosis, which has been emphasized by Belt.[11]

*Edema.*—Although, as emphasized previously, thrombophlebitis is relatively rarely complicated by embolism, in most cases persistent, annoying, uncomfortable and disabling sequelae develop unless adequate therapy is instituted during the acute phase of the venous lesion. The persistent postphlebitic sequelae consists of edema, ulceration and recurrent streptococcic infection. Whereas in some cases, all three of these processes occur concomitantly, because all may be due to the same disturbed physiologic mechanism, the cause of each is not necessarily the same.

Without question, the most frequently encountered postphlebitic sequel is edema. In fact, there are few cases of phlegmasia alba dolens which if not treated promptly and adequately by vasodilation during the acute phase of the process will not have persistent edema. We have previously shown, both experimentally and clinically, that in the acute phase of thrombophlebitis, although the lesion is within the vein, the symptoms, namely, pain, swelling, and persistence of fever, are the result of associated reflex arteriolar spasm. By early vasodilation during the acute phase of thrombophlebitis there is a prompt subsidence of all clinical manifestations and rapid resolution of the inflammatory process. Instead of the persistence of the symptoms and the development of sequelae, the patients are, with few exceptions, well within a week or ten days. Although it has been definitely proved that the edema during the acute phase of thrombophlebitis is due to vasospasm and the resulting relative anoxia of the capillary endothelium, causing the exudation into the perivascular spaces, it has been difficult to envision that vasospasm is responsible for the persistent edema occurring as a postphlebitic sequel. In fact, for many years we doubted whether the persistent postphlebitic edema could be caused by vasospasm. Approximately twelve years ago we saw a patient who six years previously had had severe thrombophlebitis complicated by persistent disabling edema. Because her physicians had told her that vasodilatation was beneficial in acute thrombophlebitis, she insisted that procaine hydrochloride anesthetization of her regional sympathetic ganglions be done even though there was no evidence of vasoconstriction. Although we anticipated little improvement, a dramatic decrease in the size of the extremity was observed after vasodilatation. Since this time we have become increasingly impressed by the importance of vasospasm as a causative factor in persistent postphlebitic edema. Although clinically there is no evidence of vasospasm, such as the coldness and whiteness of the extremity which are prominent during the acute phase of phlegmasia alba dolens, in approximately 90 per cent of cases after procaine hydrochloride anesthetization of the regional sympathetic ganglions there is increased warmth and a decrease in the size of the extremity. Because it is the most frequent cause, we believe that in every case of postphlebitic edema one should determine whether vasospasm is a factor or not. This is accomplished easily by measuring the circumference of the extremity at several levels. Using a bony line mark at the knee, such as the joint space, measurements are made at the knee, at a prominent portion of the calf and just above the ankle (fig. 2). Similarly, two such measurements are made on the thigh. After mensuration, the patient is instructed to walk at his normal gait for a distance of approximately a mile, after which the measurements are again repeated and a procaine hydrochloride block of the regional sympathetic ganglions performed (fig. 3). The patient then, as previously, walks the same distance at the same rate of speed. After the completion of this tour, measurements of the circumferences of the extremity are remade and compared with the two previous measurements. If there is a decrease in the circumference of the extremity after the sympathetic block, one is

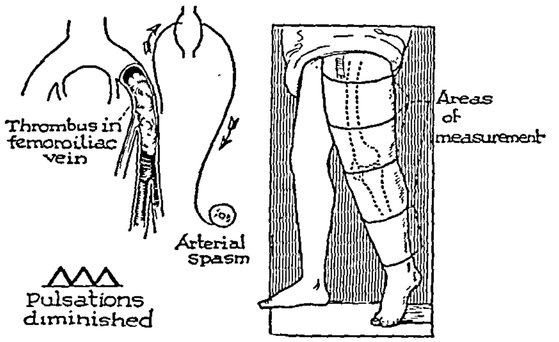

Fig. 2.—Diagrammatic representation of persistent postphlebitic edema produced by vasospasm. Because of the irritation of the venous endothelium, impulses are carried over the sympathetic nervous system, producing spasm of the accompanying arterioles. Measurements of the extremity are made at five levels: two in the thigh, two in the leg and one at the knee, using the bony landmark of the knee for determining the sites of measurement.

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[9] Viereck: Die unterbindung der vena jugularis bei der thrombose des sinus transversus, Verhandl. d. deutsch. otol. Gesellsch. 9:77, 1900.

[10] Collins, C. G.: Personal communication to the author.

[11] Belt, T. H.: Late Sequelae of Pulmonary Embolism, Lancet 2:730, 1939.

justified in assuming that vasospasm is a factor in producing the edema (fig. 4).

The treatment of a patient with postphlebitic edema which is due to vasospasm may be either conservative or radical. As most of the patients are housewives, who are able to arrange their day more or less arbitrarily, conservative therapy is to be preferred and unusually is radical therapy necessary. The patient should avoid those measures which produce vasoconstriction, such as smoking and exposure to cold, and should avoid becoming emotionally upset. They are instructed to use compression applied before arising in the morning either by elastic bandages ("ace" no. 8, "lastex") from toes to the knee or by elastic stockings. We prefer the bandages, because although an elastic stocking is easier to use and is slightly less objectionable to the patient as regards its appearance, it has the disadvantage of stretching and not fitting properly after a few days. Even though the elastic bandage ("ace" no. 3) similarly stretches, it is applied daily to conform to the size of the leg that particular day. The avoidance of chilling, particularly during the night, is important, and an electric blanket is valuable. The length of time required for the complete subsidence of the edema in such a case is several months to a year or longer, but the improvement is usually progressive and finally complete. In the person who is more or less incapacitated because of edema resulting from vasospasm, such as the laborer who stands at a lathe or other machine, and in whom a rapid recovery is desirable, sympathectomy is recommended. This brings about permanent and complete vasodilatation and results in a reestablishment of the normal size of the extremity more rapidly. It is possible that the increase in the blood supply to the extremity by increasing arteriolar pulsations, which, as shown by McMaster[12] and Blalock,[13] are responsible for movement of the lymph, is a factor in reducing the size of the extremity in these patients.

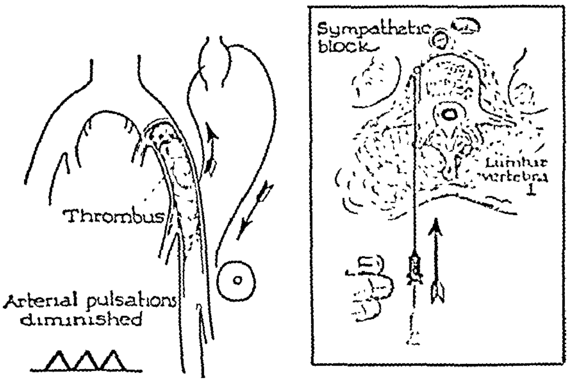

Fig. 3.—Technic of lumbar sympathetic block. With the patient in the supine position or in the lateral decubitus position, points 2 fingerbreadths lateral to the spinous processes of the first, second, third and fourth lumbar vertebrae are located and cutaneous wheals with procaine hydrochloride made at each, with a *long fine needle* (5½ inch, B.D., 20 gage). The needle is introduced through each of these points until it hits the transverse process The direction of the needle is then changed slightly, either above or below, and introduced for an additional 2 fingerbreadths. The spinous process serves as a landmark, because whereas there may be considerable difference in the thickness of the erector spinae mass and the subcutaneous fat of a large obese muscular man and a little thin woman, there is not much difference in the thicknesses of the bodies of their vertebrae. Through each one of the four ports, 5 cc. of 1 per cent procaine hydrochloride is injected.

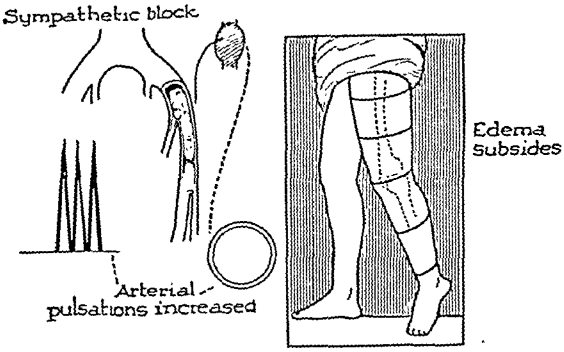

Fig. [illegible] representation showing decrease in the size of the [illegible]odilatation produced by lumbar sympathetic block. [illegible] one can assume that the persistent edema is due to persistent vasospasm.

Because of the beneficial effect of skeletal muscle contraction in the movement of blood and lymph in the extremities, patients with postphlebitic edema are instructed to walk considerably but to refrain from standing. If they are required to stand in one position for any length of time, they should contract their calf muscles by standing on their toes from time to time, in order to facilitate lymph movement.

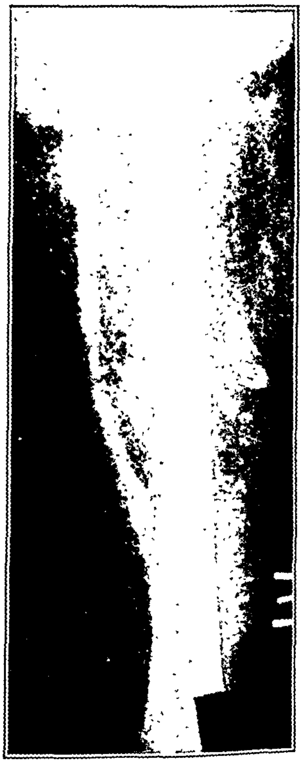

Fig. 5.—Phlebogram of a patient with persistent postphlebitic edema, but in whom vasodilatation produced by lumbar sympathetic block did not result in a decrease in the size of the extremity. Phlebogram shows the deep veins not only patent, but also dilated.

Although 90 per cent of our patients with persistent postphlebitic edema have sufficient vasospasm to cause the edema, there are a few (approximately 10 per cent) in whom the edema is not the result of vasospasm. By a process of elimination one determines whether postphlebitic edema is caused by vasospasm or not. In those patients not benefited by vasodilatation, the edema is due to some other factor. Edwards,[14] Homans,[15] Buxton and his co-workers[16] and Linton[17] maintained that postphlebitic edema results because of destruction of the valves in the deep veins by the thrombophlebitic process. Although these observers stated the belief that this is the most frequent cause of postphlebitic sequelae, from our own experience we are convinced that this represents a relatively small group (less than 10 per cent). The patient who is not benefited by

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12. McMaster, P. D., and Parsons, R. J.: The Effect of Pulse on the Spread of Substances Through Tissues, J. Exper. Med. **68**: 377, 1938.

13. Cressman, R. D., and Blalock, A.: The Effect of Pulse upon the Flow of Lymph, Proc. Soc. Exper. Biol. & Med. **41**: 140, 1939.

14. Edwards, E. A., and Edwards, J. E.: The Effect of Thrombophlebitis on the Venous Valve, Surg., Gynec. & Obst. **65**: 310, 1937.

15. Homans, J.: The Late Results of Femoral Thrombophlebitis and Their Treatment, New England J. Med. **235**: 249, 1946.

16. Buxton, R. W.; Farris, J. M.; Moyer, C. A., and Coller, F. A.: Surgical Treatment of Longstanding Deep Phlebitis of the Leg, Surgery **15**: 749, 1944. Buxton, R. W., and Coller, F. A.: Surgical Treatment of Long-Standing Deep Phlebitis: II. Supplementary Report, Surgery **18**: 663, 1945.

17. Linton, R. R., and Hardy, I. D., Jr.: Post-Thrombotic Sequelae of the Lower Extremity: Treatment by Superficial Femoral Vein Interruption and Stripping of the Saphenus Vein, S. Clin. North America **27**: 1171, 1947.

vasodilatation should have careful phlebographic examinations in order to determine whether the deep veins are patent or not. From our experience the persistence of edema in a patient in whom vasospasm is not the cause is the result of one of two types of lesions: one in which the deep veins are patent and function as a channel through which the blood can be carried, but in which the valves are incompetent because of their destruction by the previous inflammatory process in the vein permitting reversal of blood flow, and another in which the vein does not recanalize but is obliterated and embedded in dense perivenous scar. Phlebograms will differentiate between the two types of lesions. Although phlebographic examination will not determine the presence of perivenous scar, we believe that with evidence of obliteration of the deep venous system one can assume there is associated perivenous fibrosis.

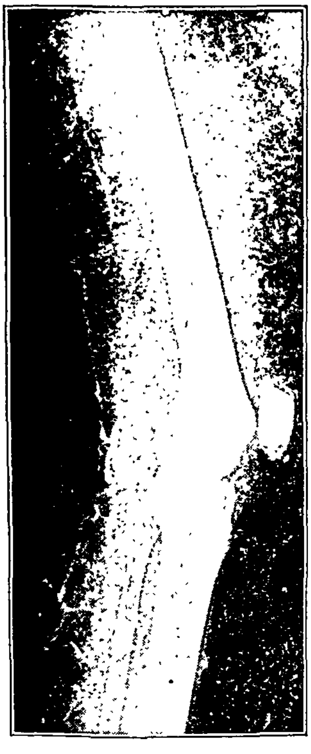

Fig. 6.—Phlebogram of a patient with persistent postphlebitic edema in whom vasodilatation secured of lumbar sympathetic block did not result in decrease in the edema. The phlebogram shows complete absence of filling of the deep veins with the development of extensive collaterals in the superficial veins.

*Incompetency of Valves.* — Incompetence of the valves of the deep venous system, because of their destruction or fixation by the previous severe thrombophlebitis, results in reversal of blood flow in the deep veins with the patient in upright position. Because of this, tremendous head pressures are exerted on the valves of the communicating veins, producing their incompetence. The increased pressure in the deep venous system is then exerted in the superficial veins, producing pronounced stasis in the dependent portions of the legs, particularly in the region of the internal malleolus. Because of this there is the likelihood of other sequelae besides edema, such as dermatitis and ulceration.

It may be assumed that in a patient with persistent postphlebitic edema, who is not benefited by vasodilatation and in whom there is phlebographic evidence of deep vein patency, the valves of the deep veins are incompetent (fig. 5). The treatment in such a case consists of exposure of the deep veins in Hunter's canal and ligation of the superficial femoral vein (fig. 7).

*Ulceration.*—If there is an associated ulceration, it has been our custom to perform a preliminary sympathectomy on that side, not with the idea of overcoming vasospasm and correcting the edema, because preliminary examination has demonstrated that the vasospasm is not a factor in the production of edema, but in order to increase the vascularity of the part and to favor healing. In addition to ligation of the superficial femoral vein, we have ligated subfascially the communicating veins beneath the ulcer and in this way have been able to secure rapid healing of the ulcer and ultimate good results (fig. 7). A few of these patients have subsequently had superficial varicosities, which have been treated according to their manifestations. Generally, we have done high ligation of the saphenous at the fossa ovale, with all its tributaries, and stripped the long saphenous vein.

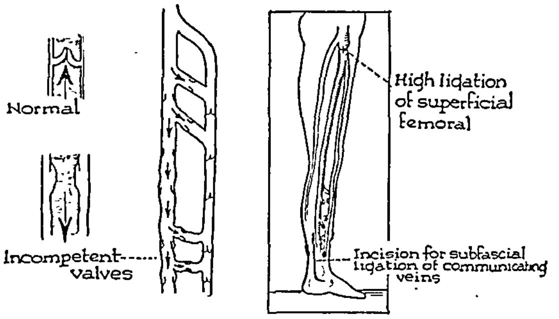
Normal
Incompetent valves
High ligation of superficial femoral
Incision for subfascial ligation of communicating veins

Fig. 7.—Diagrammatic representation of treatment in patients with postphlebitic edema due to incompetent valves of the deep venous system. The superficial femoral vein is ligated, and in those instances in which there is an incompetence of the valves of the communicating veins, particularly in the legs, usually associated with ulcer, an incision is made beginning below the internal malleolus and extending up posteriorly and superiorly in order to permit subfascial ligation of the communicating veins. The edema in this instance is due to increased venous pressure and retrograde flow in the deep venous system.

*Perivenous Cicatrization.*—In the patient with persistent edema which is not due to vasospasm, as determined previously by vasodilatation with sympathetic block, and in whom phlebographic examination determines an absence of filling of the deep veins, one can assume that edema is due not to increased venous pressures because of incompetence of the deep vein valves, but probably to excessive perivenous cicatrization (fig. 6). The dense fibrous tissue mantle surrounding the vascular bundle predisposes to edema in two ways: by preventing dilatation of the canaliculi in the organized venous thrombus and by interfering with reestablishment of normal lymph channels and lymph flow. These patients are best treated by the "unbridling" operation suggested by Jennings.[18] Exploration of the involved vein in Hunter's canal or in the pelvis reveals a pronounced perivenous cicatrix with extensive constriction of the involved vein. With considerable difficulty this fibrous tissue mantle is dissected away and the vein and artery are free (fig. 8). Whether the

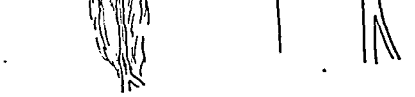

Fig. 8.—Diagrammatic representation of the treatment of patients with persistent postphlebitic edema not due to vasospasm and in whom phlebogram shows absence of filling of the deep venous system. The persistent edema in this instance is due to decided constriction of the involved vein and the extensive perivenous scar. The treatment consists of freeing the vein and removing the excessive scar throughout the entire extent of involvement.

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[18] Jennings, J. E.: Choked Leg, Ann. Surg. 98:928, 1933.

removal of constricting influence of the perivenous scar results in sufficient dilatation of the canaliculi in the organized vessel to decrease venous obstruction or whether the removal of the perivenous fibrous tissue mass favors the development of new lymphatic channels, one is not able to say. The fact remains, however, that this procedure has been followed by decided improvement in the cases in which it has been done.

*Streptococcic Infection.*—A relatively infrequent sequel to thrombophlebitis, but one which is entirely preventable, is recurrent erysipeloid infection. Sabouraud[19] and Unna[20] were the first to call attention to the etiologic significance of streptococci in cases of progressive lymphedema associated with erysipelas-like attacks. Matas,[21] the first Hodgen lecturer, in 1911 and later in 1913 described the similarity of the clinical picture of recurrent erysipelas and that of acute attacks of recurrent lymphangiitis occurring periodically in cases of recurrent lymphedema which terminates in elephantiasis. As has been shown by Drinker and his associates,[22] the persistence of edema favors the development of streptococcic infection. They demonstrated that dogs which normally are resistant to hemolytic streptococcic infection become extremely susceptible locally in the presence of edema resulting from lymphatic obstruction. Because of this, it is imperative that in all persons in whom there is a tendency for edema to develop every measure must be taken to prevent the persistence of the edema and development of the inflammatory process. This can be obviated largely by the adequate control of the edema by use of compression bandages and the prevention of the streptococcic infection in the edematous area. The recurrent attacks of erysipeloid infection consist of chills and fever associated with burning, itching, pain and redness of the extremity. The streptococci usually gain entrance to the extremity through breaks in the skin and the infection is especially likely to be associated with fungous infections, such as epidermophytosis. Thompson[23] has emphasized the importance of sensitization to fungi in the development of these symptoms. Although the edema following uncomplicated thrombophlebitis is relatively easily controlled by rest in bed and elevation of the extremity or the use of compression bandages and exercise, the swelling of the extremity associated with and subsequent to recurrent erysipeloid infection of the edematous extremity does not subside with bed rest. This is because of the deposition of scar as the result of the infection. Although edema is a prominent part of this picture, the edematous fluid is encapsulated in small lacunas of fibrous tissue and cannot be carried away as normally occurs. In the recurrent erysipeloid infection a vicious circle is set up. The edema predisposes to infection and the infection in turn increases the edema because of the deposition of scar tissue, and ultimately true elephantiasis results.

The therapy of recurrent streptococcic infection of the lower extremity associated with edema consists primarily of prophylaxis, i. e., the control of edema and the prevention of streptococcic infections in patients with incipient edema. The incidence of this condition is much greater in the South, probably because of the higher incidence of epidermophytosis, resulting from the warmer climate and excessive perspiration of the feet. In many cases a sympathectomy is advisable in order to produce anhydrosis of the feet and thus prevent skin maceration, epidermophytosis and streptococcic infection. It must be emphasized that the sympathectomy in such cases is done because of its dehydrating effect and not to produce vasodilatation. Matas suggested that because of the streptococcic infection an attempt should be made to immunize the patients by repeated injections of polyvalent streptococcic antiserum over a long period of time. We used this method of therapy for a number of years, but, as previously reported,[24] discontinued it because the results were not good enough to justify its continuation. On the suggestion of Dr. Hugh Trout,[25] for a number of years we have used 3 to 4 Gm. of sulfadiazine daily for a week each month over a period of a year. Although this therapy has been satisfactory in controlling the recurrence in practically all cases, it is probably not without danger because of the possible hazard of the development of sensitivity to sulfonamide drugs. In those persons who experience toxic manifestations from sulfonamide drugs, we use penicillin. The treatment of the acute attack consists of immediate rest in bed and the prompt institution of antibiotic therapy, preferably penicillin, in order to minimize the amount of infection and to cut as short as possible the course of the disease. Any foci of infection within the body through which micro-organisms might gain entrance or from which they might originate must be removed. We previously reported the case of a boy who had had a severe third degree burn of the right lower extremity, which caused extensive cicatrization of the popliteal space. As a result of this relatively nonviable scar, a recurring ulcer developed in the popliteal area. Typical erysipelas developed, which recurred many times. After excision of the scar and ulcer and the application of a pedicle graft from the opposite thigh to the popliteal area, the patient became completely free from symptoms in fourteen years. It is obvious in this instance that the stress on the scar tissue in the popliteal area prevented the healing of the ulcer, which, although at a point some distance from the focus of infection, served as the portal of entry for organisms responsible for the recurrent attacks of streptococcic infection. In the case in which there have been repeated attacks resulting in deposition of considerable scar with the production of elephantiasis, it may be necessary to resort to radical procedures, such as a modified Kondoleon operation, because only by such therapy can the excessive subcutaneous fibrous tissue, which is responsible for the persistence of edema, be removed.

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[19] Sabouraud, R.: Sur la parasitologie d'éléphantiasis nostras, Ann. de dermat. et syph. **3**: 592, 1892; cited by Stevens, F. A.: Chronic Infectional Edema, J. A. M. A. **100**: 1754 (June 3) 1933.

[20] Unna, P. G.: The Histopathology of the Diseases of the Skin, Edinburgh, W. F. Clay, 1896, p. 492.

[21] Matas, R., in discussion on Vander Veer, A.: Lymphatic Edema, Elephantiasis, Observations and Remarks: Report of Operations, South. S. & Gynec. A. **24**: 409, 1911. Matas, R.: The Surgical Treatment of Elephantiasis and Elephantoid States Dependent upon Chronic Obstruction of the Lymphatic and Venous Channels, Am. J. Trop. Dis. **1**: 60, 1913.

[22] Drinker, C. K.; Field, M. E.; Ward, H. K., and Lyons, C.: Increased Susceptibility to Local Infection Following Blockage of Lymph Drainage, Am. J. Physiol. **112**: 74, 1935.

[23] Thompson, K. W.: Studies on the Relationship of Dermatomycosis to Ulceration and Gangrene of the Extremities, Yale J. Biol. & Med. **16**: 665, 1944.

[24] Ochsner, A.; Longacre, A. B., and Murray, S. D.: Progressive Lymphedema Associated with Recurrent Erysipeloid Infections, Surgery **8**: 383, 1940.

[25] Trout, H.: Personal communication to the author.

### SUMMARY AND CONCLUSIONS

Post-thrombotic sequelae are extremely serious in that they may end fatally or, at best, produce disabling symptoms. Although of serious importance, they can be prevented; if prompt, adequate therapy is used early in the course of the venous lesion, not only will the progress of the thrombosing process be stopped but the undesirable sequelae will be prevented.

Fatalities following venous thrombosis are usually the result of embolism. Massive pulmonary embolism resulting from the detachment of a large nonadherent clot in phlebothrombosis is likely to cause sudden death. The detachment of smaller portions of a coagulation thrombus in phlebothrombosis results in pulmonary infarction and subsequent pneumonitis. They are of significance not only because of the development of the pneumonitis, but because they indicate the presence of a thrombus which can become loosened and produce fatal pulmonary embolism.

Death may be caused by emboli in suppurative thrombophlebitis. Although the clot originally in this lesion is firmly fixed to the vein wall and will not become detached, as a result of the liquefying action of the suppurative process, the clot can be softened with the production of multiple septic emboli. Death in such an instance is not from massive pulmonary embolism as in phlebothrombosis, but is from septic infarction of the lung and sepsis.

With the exception of suppurative thrombophlebitis, fatalities usually do not occur in cases of thrombophlebitis. The reason for this is that the clot in thrombophlebitis is firmly attached to the vein wall and there is little danger of its becoming detached with the production of an embolus. Thrombophlebitis, however, unless adequate therapy is instituted early during the course of the disease, is likely to be followed by disabling persistent sequelae. The principal sequelae are edema, ulceration and recurrent streptococcic infection.

Edema is by far the most frequently encountered post-thrombotic sequel. In fact, there are few cases of true phlegmasia alba dolens in which early adequate therapy is not used in which post-phlebitic edema does not develop. Edema may be due to one of three causes: (1) persistent vasospasm, (2) increased venous pressure due to incompetence of the valves of the deep veins and retrograde blood flow in them, decidedly increasing the filtration pressure (this type of edema is likely to be associated with ulceration of the dependent portion of the leg), and (3) pronounced perivenous cicatrization, producing interference with the return flow of blood through the deep venous system. In order to determine the type of lesion in postphlebitic edema, it is necessary to determine whether vasospasm is present or not. If vasospasm is present, measures to produce vasodilatation usually result in complete recovery. In the absence of vasospasm, it is imperative to make careful phlebographic studies to determine the patency of deep veins. If the deep veins are patent, there is almost invariably an incompetence of the valves of the deep veins with reversal of flow in them, usually with associated incompetence of the valves of the communicating veins, particularly in the lower leg. The treatment in such an instance consists of ligation of the deep veins, particularly the superficial femoral and the subfascial ligation of the communicating veins in the leg. This will benefit not only the edema, but also the associated ulceration in the lower portion of the leg. If phlebographic examination shows an absence of filling of the deep veins, one can assume that the edema is due to a definite perivenous cicatrix, particularly in the femoroiliac area, producing obstruction of the deep venous flow and probably interference with the reestablishment of normal lymphatic channels. These patients are best treated by "unbridling" of the constricted vessel by removal of the perivenous scar. This presumably permits the dilatation of the canaliculi in the organized segment and the possible development of new lymphatic channels in the perivenous area.

Postphlebitic ulceration is usually the result of incompetence of the valves of the deep veins and an incompetence of the valves of the communicating veins. The correction of these abnormalities results in a healing of the ulcer.

Recurrent streptococcic infection occurs as a result of persistent edema and the introduction of streptococci into the edematous area. These usually gain entrance through fissures on the feet as a result of epidermophytosis. Characteristically, the condition is a chronic recurring one with the production of an excessive amount of subcutaneous scar tissue. The treatment consists primarily of prophylaxis, i. e., the prevention of edema and the prevention of contamination with streptococci. Compression bandages are used to prevent the edema, fungous infection of the feet is controlled and anhydrosis of the feet produced in susceptible persons by the performance of a sympathectomy. Once a streptococcic infection has occurred, the administration of sulfonamide drugs, 3 to 4 Gm. daily for a week out of each month for several months, will generally control the infection.

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# MECHANISM OF THE POSTGASTRECTOMY SYNDROME

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and
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Partial gastrectomy remains at present the method of choice in the surgical treatment of peptic ulcer. Studies of the past few years regarding vagotomy alone or in combination with gastroenterostomy or gastric resection do not as yet permit a final evaluation of this procedure. A recent discussion on vagotomy[1] disclosed a considerable difference of opinion with regard to the selection of cases, the technical procedure and the postoperative complications. Many more years of study will be necessary to answer these questions, so that at present vagotomy is still on trial. In contrast, partial gastrectomy has been practiced for many years in all parts of the world and considerable experience is available concerning immediate and late results. With advancement of technic, postoperative mortality has been reduced to a minimum and the final results appear to be in general satisfactory. Jejunal ulcer, exceedingly common after gastroenterostomy, represents a rare complication of gastric resection. In one of the

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*From the Nutrition Clinic of the Medical Services of the Mount Sinai* Hospital.

Read before the Section on Gastroenterology and Proctology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

[1] Panel Discussion on Vagotomy, American Gastro-Enterological Association, Atlantic City, N. J., May 1, 1948. Walters, W.: Vagotomy for Peptic Ulcer, Proc. Staff Meet., Mayo Clin. **22**: 281 (July 23) 1947. Colp, R., in discussion on Walters, p. 288. Weinstein, V. A., and Colp, R.: Supradiaphragmatic Vagotomy in Gastrojejunal Ulceration Following Subtotal Gastrectomy for Duodenal Ulcer, S. Clin. North America. **27**: *249* (April) 1947.

recent reviews of 615 cases of gastrectomy, followed up over a period of years, marginal ulcer was observed in only about 1 per cent of the cases.[2]

Despite absence of jejunal ulcer, a group of these patients show postprandial distress and weakness and are unable to gain weight, symptoms which may interfere seriously with their daily life. This clinical observation has been made, irrespective of the surgical method employed, in various hospitals throughout the world.[3] The extensive literature on this subject proves that gastroenterologists, as well as surgeons, have recently become increasingly interested in the unfavorable sequelae of partial gastrectomy in persons without jejunal ulcer who, according to various statistics, represent 6 to 38 per cent of all patients on whom this operation has been performed for peptic ulcer.

In a previous study, an effort was made to classify and clarify these symptoms, for which the term "postgastrectomy syndrome" was suggested.[4] Analysis of the underlying mechanisms is the purpose of this communication.

CLINICAL CHARACTERISTICS

This study included 20 patients with partial gastrectomy who were observed during the past five years at the Nutrition Clinic of the Mount Sinai Hospital in New York city. A part of this material was reported in a previous publication.[4] All patients presented nutritional problems and were decidedly underweight. During the course of observation a careful study of symptoms and underlying causes was attempted. It included clinical examination, roentgenographic studies, laboratory analyses, psychosomatic studies and determination of the response to various types of high caloric, high protein, high fat, high vitamin diet, supplemented with vitamin concentrates and liver extracts. With few exceptions the therapeutic results were unsatisfactory.

Of the 20 patients, 19 had had gastric resection for peptic ulcer and 1 for gastric syphilis. Of the 19 ulcer patients, 14 had duodenal ulcer and 5 gastric ulcer before operation. In 1 instance a subdiaphragmatic vagotomy was performed at the time of the gastric resection. As in the previous publication, patients with resection for gastric carcinoma were purposely not included, since undiagnosed recurrence of the original disease may in these patients be the cause of loss of weight and poor nutritional status. Eleven of the patients were men and 9 women. The age of the patients at the time of this study was 32 to 73 years, with an average age of 51 (table 1). The high average age of the group is explained by the long duration of symptoms before and after operation. The age at the onset of symptoms was 15 to 53 years, the average age 32, and at time of operation it was 29 to 55 years, with an average of 42. Thus, these patients were confronted with ulcer symptoms at the average age of 32, and with gastrectomy at 42, while the average age at the time of this study was 51.

Reliable information regarding weight at onset of ulcer symptoms was obtained from 15 patients and regarding weight at time of operation from 17. The body weight before the onset of symptoms was 114

TABLE 1.—*Clinical and Laboratory Data*

| | | | Age, Years | | | Weight, Lb. | | | Symptoms | | | | | | | Blood Morphology and Protein Content | | | | | Gastric Acidity, Highest Figures | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Patient No. | Sex | Operation | At Onset of Ulcer Symptoms | At Time of Operation | At Time of Study | At Onset of Ulcer Symptoms | At Time of Operation | At Time of Study | Weakness; Fatigue | Postprandial Fulness and/or Nausea | Eructation and Belching | Dizziness | Constipation | Diarrhea | Vitamin Deficiency | Hemoglobin, per Cent | Erythrocytes (in Millions) | Total Protein of Serum, Gm./100 Cc. | Serum Albumin, Gm./100 Cc. | Serum Globulin, Gm./100 Cc. | Free Acidity | Total Acidity |
| 1 | F | Duodenal ulcer | 26 | 29 | 32 | 130 | 116 | 111½ | + | + | + | + | + | − | − | 83 | 4.65 | 6.3 | 5.0 | 1.3 | 0 | 14 |
| 2 | F | Duodenal ulcer | 25 | 47 | 49 | 111 | 118 | 90 | + | + | + | + | + | − | − | 80 | 4.10 | 5.6 | 4.4 | 1.2 | 30 | 42 |
| 3 | F | Duodenal ulcer | 16 | 30 | 43 | 130 | 125 | 118¾ | + | + | + | + | + | − | − | 70 | 4.15 | ... | ... | ... | 26 | 42 |
| 4 | M | Duodenal ulcer | 44 | 45 | 52 | 155 | 120 | 112 | + | + | + | + | + | − | + | 78 | 4.25 | 4.6 | 3.1 | 1.5 | 0 | 9 |
| 5 | M | Duodenal ulcer | 27 | 49 | 52 | 120 | 112 | 99 | + | + | + | + | − | − | + | 85 | 4.51 | 6.1 | 4.4 | 1.7 | 0 | 12 |
| 6 | M | Duodenal ulcer | 31 | 49 | 52 | ? | 155 | 132 | + | + | − | − | − | − | − | 79 | 4.42 | ... | ... | ... | 14 | 26 |
| 7 | M | Gastric ulcer | 53 | 55 | 57 | ? | 158 | 128 | + | + | + | + | − | − | − | 85 | 4.62 | 6.1 | 4.7 | 1.4 | 0 | 14 |
| 8 | F | Gastric ulcer | 34 | 46 | 59 | ? | ? | 95 | + | + | + | + | + | − | − | 77 | 4.12 | ... | ... | ... | 0 | 24 |
| 9 | M | Duodenal ulcer | 45 | 49 | 59 | 130 | 111 | 115½ | + | + | + | + | + | − | + | 85 | 4.48 | 5.5 | 4.5 | 1.0 | 0 | 12 |
| 10 | M | Duodenal ulcer | 43 | 43 | 59 | 150 | ? | 125 | + | + | + | − | + | + | − | 92 | 4.71 | 5.3 | 3.5 | 1.8 | 32 | 46 |
| 11 | M | Gastric ulcer | 37 | 53 | 54 | 190 | 162 | 166 | + | − | + | + | − | − | − | 101 | 5.62 | 7.4 | ... | ... | 0 | 15 |
| 12 | F | Duodenal ulcer | 16 | 40 | 61 | 132 | ? | 117 | + | − | − | − | − | + | + | 70 | 3.79 | 6.8 | 4.3 | 2.5 | 0 | 14 |
| 13 | M | Duodenal ulcer | 15 | 50 | 51 | 178 | 117½ | 131 | + | + | + | + | + | − | − | 94 | 4.51 | ... | ... | ... | 16 | 24 |
| 14 | F | Gastric syphilis | ? | 33 | 36 | 114 | 70 | 92½ | + | + | + | + | − | − | − | 78 | 4.18 | ... | ... | ... | .. | .. |
| 15 | F | Gastric ulcer | 31 | 39 | 40 | 128 | 85½ | 95 | + | + | + | + | + | − | − | 82 | 3.62 | ... | ... | ... | 0 | 10 |
| 16 | M | Duodenal ulcer | 40 | 43 | 53 | 130 | 135 | 132 | + | − | − | + | − | + | − | 77 | 4.70 | ... | ... | ... | 0 | .. |
| 17 | M | Gastric ulcer | 41 | 51 | 73 | ? | 124 | 113 | + | + | + | + | − | + | − | 68 | 4.13 | ... | ... | ... | 0 | .. |
| 18 | F | Duodenal ulcer | ? | 37 | 47 | 178 | 140 | 109 | + | + | + | + | + | − | + | 68 | 4.09 | ... | ... | ... | tr. | .. |
| 19 | M | Duodenal ulcer | 25 | 31 | 55 | ? | 136 | 121 | + | + | − | + | − | − | − | 85 | 4.90 | ... | ... | ... | 0 | 8 |
| 20* | F | Duodenal ulcer | 29 | 31 | 32 | 130 | 130 | 90 | − | + | − | + | − | ± | − | 90 | .... | ... | ... | ... | 0 | .. |

* Dr. Asher Winkelstein supplied the data on patient 20.

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[2] Lake, N. C.: The Aftermath of Gastrectomy, Brit. M. J. **1:** 285 (Feb. 14) 1948.

[3] (*a*) Jordan, S. M.: End Results of Radical Surgery of the Gastrointestinal Tract as Seen by Gastroenterologist, J. A. M. A. **116:** 586 (Feb. 15) 1941. (*b*) Mateer, J. G., in discussion on Jordan.[3a] (*c*) Miller, G. G.: Report on Two Hundred and Thirty Cases of Subtotal Gastric Resection for Gastric Ulcer, Surgery **12:** 383 (Sept.) 1942. (*d*) Custer, M. D.; Butt, H. R., and Waugh, J. M.: The So-Called Dumping Syndrome After Subtotal Gastrectomy: A Clinical Study, unpublished data; cited by Berkman and Heck.[3e] (*e*) Berkman, J. M., and Heck, F. J.: Symptoms Following Partial Gastric Resection, Gastroenterology **5:** 85 (Aug.) 1945. (*f*) Sandweiss, D. J.; Sugarman, M. H.; Podolsky, H. M., and Friedman, M. H. F.: Nocturnal Gastric Secretion in Duodenal Ulcer, J. A. M. A. **130:** 258 (Feb. 2) 1946. (*g*) Crohn, B. B., in discussion on Sandweiss, Sugarman, Podolsky and Friedman.[3f] (*h*) Evensen, O. K.: Alimentary Hypoglycemia After Stomach Operations and Influence of Gastric Emptying on Glucose Tolerance Curve, Acta Med. Scandinav. 1942, supp. 126, p. 1. (*i*) Gilbert, E. A. L., and Dunlop, D. M.: Hypoglycemia Following Partial Gastrectomy, Brit. M. J. **2:** 330 (Aug. 30) 1947. (*j*) Perman, C.: The So-Called Dumping Syndrome After Gastrectomy, Acta med. Scandinav. 1947, supp. 196, p. 361. (*k*) Barnes, C. G.: Hypoglycemia Following Partial Gastrectomy, Lancet **2:** 536 (Oct. 11) 1947. (*l*) Zollinger, R. M., and Hoerr, S. O.: Gastric Operations: Troublesome Post-Operative Symptoms with Special Reference to Carbohydrate Ingestion, J. A. M. A. **134:** 575 (June 14) 1947. (*m*) Hypoglycemia After Partial Gastrectomy, editorial, Lancet **2:** 549 (Oct. 11) 1947.

[4] Adlersberg, D., and Hammerschlag, E.: The Postgastrectomy Syndrome, Surgery **21:** 720 (May) 1947.

to 190 pounds (51.7 to 86.2 Kg.), an average of 140.6 pounds (63.8 Kg.); the weight before operation was 70 to 162 pounds (31.8 to 73.5 Kg.), with an average of 126.1 pounds (57.2 Kg.). At the time of this study, weight ranged from 90 to 166 pounds (40.8 to 75.3 Kg.), with an average of 114.6 pounds (51.9 Kg.). Thus, the average loss of weight before operation was 14.5 pounds (6.6 Kg.) and after the operation 11.5 pounds (5.2 Kg.), totaling 26 pounds (11.8 Kg.). The nutritional status of these persons was not improved by the operation but showed additional deterioration.

## SYMPTOMS

The clinical features of the postgastrectomy syndrome have been adequately described by all authors interested in the subject. It consists of weakness, tiredness, fatigue, inability to gain weight and to work; postprandial symptoms of distress, fulness, nausea, eructation, belching, perspiration, dizziness, palpitation and various additional vasomotor symptoms, and, finally, occasional intestinal symptoms of constipation or diarrhea. All patients of the group had a good functioning stoma. Persons with a poorly functioning or nonfunctioning stoma were not included. An attempt was made to evaluate the frequency of the symptoms in our group of patients (table 1). Weakness and/or pronounced fatigue, particularly after meals, was present in 19 patients, and was the most frequent complaint; postprandial fulness and/or nausea, in 17; dizziness, mostly in conection with meals, in 17; eructation and/or belching, in 15; constipation, in 10, and diarrhea, in 5.

The general symptoms of dizziness, palpitation, profuse perspiration and weakness resulted in some instances in fainting or compelled other patients to lie down after meals in order to prevent syncope.

Despite marked underweight of all patients, evidence of vitamin deficiency was not frequent. Only 5 persons presented clinical signs of vitamin deficiency, sore mouth, reddening and hypertrophy of lingual papillae and in 2 instances cheilosis. The other patients showed only milder signs of nicotinic acid and/or riboflavin deficiency in the mucous membranes of the oral cavity and occasionally dry skin with hyperkeratosis and folliculitis, evidence of mild vitamin A deficiency.

Of additional clinical findings, only the most important should be mentioned: bronchiectasis and shrinkage of the lower lobe of the right lung in patient 8, evidence of gout in patient 12, mild thromboangiitis obliterans in patient 13 and Wassermann positive latent syphilis, including gastric syphilis, in patient 14. In patient 17 with arteriosclerotic heart disease, the relationship between postprandial hypoglycemia and angina pectoris became apparent in the course of observation, as may be seen from the following report.

K. F. was a 74 year old white man and a physician. Subtotal gastrectomy for gastric ulcer had been performed in 1925. Although the patient continued to practice medicine until nine years ago, he never felt well. Chief complaints were weakness, poor nutritional status, epigastric discomfort after meals, dizziness, perspiration and, more recently, precordial pain two to three hours after meals. Transurethral prostatectomy was performed in 1946. Weight at that time was 115 to 116 pounds (52.1 to 52.6 Kg.). In the last two years the postprandial symptoms, weakness, fatigue and the precordial distress became so pronounced that the patient was practically always confined to his home.

On physical examination, the patient was pale and emaciated, and looked chronically ill. His weight was 113 pounds (51.3 Kg.). Pulse rate was 72; blood pressure measured 100 mm. of mercury systolic and 72 diastolic. Heart sounds were normal with no murmurs. The abdomen showed a scar in the epigastrium; there were no masses palpable, and the liver and spleen were not enlarged. The urine gave no reaction for albumin and sugar. There was moderate secondary anemia: hemoglobin concentration, 68 per cent; 4,125,000 erythrocytes and 5,700 leukocytes with a normal differential count. Gastric analysis showed absence of free hydrochloric acid. Roentgenographic examination of the gastrointestinal tract revealed a small gastric stump with rapid emptying into the jejunum. There was also rapid motility of the small intestine. An electro cardiogram revealed evidence of myocardial damage. A dextrose tolerance test after oral administration of 100 Gm. of dextrose gave results shown in table 2 for blood sugar. In the third hour of the test the patient became strikingly pale and apprehensive, perspired profusely and complained of severe precordial pain radiating to the left arm. These symptoms were promptly relieved by orange juice.

A similar attack of hypoglycemia and angina pectoris was precipitated one month later by the insulin test. The curve for blood sugar after intravenous injection of 10 units of regular insulin was as follows: fasting, 80 mg.; after fifteen minutes, 111 mg.; after thirty minutes, 80 mg., and after forty-five minutes, 59 mg. per hundred cubic centimeters. In the last quarter of the hour the patient again showed pallor, perspiration and severe anginal pain and had to be given orange juice. He described the character and the intensity of the pain during both tests as identical with his spontaneous attacks.

TABLE 2.—*Dextrose Tolerance Tests* *

| Patient No. | Fasting | 30 Min. | 60 Min. | 90 Min. | 120 Min. | 150 Min. | 180 Min. | 210 Min. |
|---|---|---|---|---|---|---|---|---|
| 1 | 89 | 180 | ... | 113<br>(5.0) | ... | 78 | ... | 55 |
| 2 | 79 | 168 | ... | 145<br>(0.9) | ... | 105 | ... | 57 |
| 3 | 74 | 164 | ... | 71 | ... | 66 | ... | 58 |
| 4 | 105 | 200<br>(2.2) | ... | 170<br>(3.5) | ... | 75<br>(0.1) | ... | 51 |
| 5 | 88 | 160 | ... | 200<br>(5.0) | ... | 90<br>(3.5) | ... | 59 |
| 6 | 130 | 200<br>(trace) | ... | 160<br>(1.2) | ... | 79<br>(trace) | ... | 58 |
| 7 | 119 | 150 | ... | 115 | ... | 72 | ... | 51 |
| 8 | 110 | 188<br>(3.3) | ... | 220<br>(7.5) | ... | 150<br>(6.0) | ... | 59<br>(0.8) |
| 9 | 146 | 197 | ... | 258<br>(2.3) | ... | 78<br>(0.7) | ... | 60 |
| 10 | 118 | 198<br>(3.5) | ... | 160<br>(5.0) | ... | 89<br>(0.5) | ... | 80 |
| 11 | 89 | 130 | ... | 110 | ... | 86 | ... | 59 |
| 12 | 70 | ... | ... | ... | ... | ... | ... | ... |
| 13 | 91 | 180 | ... | 120 | ... | 89 | ... | 60 |
| 14 | 99 | 200 | ... | 170 | ... | 101 | ... | 70 |
| 15 | 78 | 130 | ... | 180<br>(0.6) | ... | 99 | ... | 60 |
| 16 | 93 | 130 | ... | 100<br>(3.3) | ... | 68<br>(1.0) | ... | 50 |
| 17 | 94 | 154 | 200<br>(0.5) | ... | 64<br>(0.25) | ... | 53 | .. |
| 18 | 143 | 392<br>(4+) | 276<br>(4+) | ... | 266<br>(3+) | ... | 244<br>(3+) | .. |
| 19 | 89 | 170 | ... | 140<br>(1.8) | ... | 92<br>(trace) | ... | 57 |
| 20 | 91 | 194 | 157 | ... | 93 | ... | 76 | .. |

* Blood sugar in milligrams per hundred cubic centimeters is shown, while figures in parentheses indicate sugar concentration in the urine in grams per hundred cubic centimeters. The other specimens of urine were sugar free.

Therapy consisted of a high protein, high fat diet, with only moderate amounts of carbohydrates, frequent feedings, liver extract and iron. Under this treatment weight increased by 3 pounds (1.3 Kg.); hemoglobin concentration rose to 79 per cent, and the general condition improved considerably. Although complaints of epigastric pressure and discomfort after meals persisted, though to a minor degree, the late postprandial symptoms of perspiration, anxiety, weakness and precordial oppression disappeared completely. The patient is now able to take his daily walk and to live a more active life.

*Comment.*—Typical postgastrectomy syndrome was observed in a 74 year old man who also presented evidence of arteriosclerotic heart disease. Attacks of angina pectoris occurred two to three hours after meals in association with symptoms of hypoglycemia. Similar attacks were reproduced in the dextrose tolerance test, as well as in the insulin test during the steep drop of the blood sugar level. Therapeutic management resulted in pronounced general improvement, relief of the "late" postprandial symptoms (two to three hours after meals) characteristic of hypoglycemia and subsidence of the anginal syndrome.

Another patient (no. 18) presented a combination of the postgastrectomy syndrome with diabetes mellitus, which will be discussed later.

### LABORATORY FINDINGS

Laboratory studies included blood counts and blood protein content, gastric acidity and, especially, a careful investigation of the alterations of carbohydrate metabolism. Vitamin A studies were performed in 12 patients. These studies consisted of the analysis of the fasting level of vitamin A and carotene and of the vitamin A tolerance test after oral administration of 180,000 international units of vitamin A in oil.

*Blood Counts and Protein Content.*—Only occasional abnormalities were encountered in the morphologic blood studies. The red blood cell count averaged 4,397,000 (range 3,620,000 to 5,620,000). The average hemoglobin concentration was 81 per cent (range 68 to 101 per cent). A moderate secondary anemia of the hypochromic type was observed in patients 3, 12, 17 and 18. The white blood cell count was essentially normal in the group.

The average protein content was 6 Gm. per hundred cubic centimeters of serum (range 4.6 to 7.4 Gm.), which is a low normal level for the average hospital population. The average albumin concentration was 4.2 Gm. per hundred cubic centimeters (range 3.1 to 5 Gm.); the average globulin concentration was 1.6 Gm. per hundred cubic centimeters of serum (range 1 to 2.5 Gm.). Hence, blood proteins, as well as blood protein partition, were in normal limits.

*Gastric Contents and Roentgenographic Studies.*—The gastric contents were examined in 19 patients. The test meal administered to 14 patients consisted of 150 cc. of a 5 per cent alcohol solution; 3 patients were given 60 Gm. of white toast and 200 cc. of water; 1 patient was given gruel and 1 patient bouillon. The gastric contents were collected for two hours at fifteen minute intervals. Thirteen patients showed absence of free hydrochloric acid, and in the remaining patients the figures varied from traces to 32 units of free hydrochloric acid. Total acidity ranged from 8 to 42 units. A careful search was made in order to correlate presence or absence of free hydrochloric acid with occurrence of hypochromic anemia. However, no definite relationship existed between these factors. While 1 patient with hypochromic anemia showed normal gastric acidity (no. 3), another patient (no. 18) showed traces of free hydrochloric acid, and 2 (patients 12 and 17) had achlorhydria.

In all patients roentgenographic studies of the gastrointestinal tract were performed, and special attention was paid to the size of the gastric stump, the function of the stoma, the presence of an anastomotic ulcer, evidence of gastritis and the motility of both the resected stomach and the small intestine. A well functioning stoma was present in all patients, with rapid evacuation in most. At the time of the study none of the patients presented evidence of marginal ulcer. It must be mentioned, however, that in patient 10 an anastomotic ulcer developed in the later course of observation and that patient 16, prior to the study, showed an ulceration at the junction of the afferent and efferent jejunal loops (diagnosed by gastroscopy) which healed in the course of hospitalization. In many patients a distention of the efferent jejunal loop was observed. In 1 instance (patient 20) a distention of the afferent loop was observed and coincided with the early phase of the postprandial symptoms of the patient (observation of Dr. Asher Winkelstein). Detailed studies of the small intestine were performed in 9 patients. One patient (no. 17) presented the characteristic "deficiency pattern" of the small intestine with hypermotility. The other patients showed normal pattern and motility.

Analyses of the feces for presence of undigested food elements disclosed occasionally increased amounts of fatty acids and soaps in absence of neutral fat and rarely undigested muscle fibers in moderate amounts; starch digestion was in normal limits. In none of the patients was there evidence of frothy, tan, bulky stools suggestive of steatorrhea and sprue.

*Vitamin A Metabolism.*—Estimation of vitamin A concentration of the serum in the fasting state and four hours after oral administration of the test dose of 180,000 international units of vitamin A in oil was done in 12 patients. The average fasting serum level was 66 micrograms per hundred cubic centimeters (range, 42 to 108 micrograms). The average concentration after four hours was 136 micrograms (range 66 to 195 micrograms). These figures are normal for the average patient. Only in 1 instance a flat curve was observed (patient 11). Detailed data were reported elsewhere.[4]

### ABNORMALITIES OF CARBOHYDRATE METABOLISM

Abnormalities of carbohydrate metabolism are an important feature of the postgastrectomy syndrome. Fasting blood sugar was determined in all 20 patients and was followed up in 19 by dextrose tolerance tests with oral administration of 100 Gm. dextrose. In 1 patient (no. 12) the administration of dextrose resulted on repeated occasions in violent vomiting. The majority of the other patients complained of epigastric pressure and nausea shortly after the intake of dextrose, and later of dizziness and palpitations. It was necessary to place a number of them in a horizontal position to prevent vomiting.

The average fasting blood sugar (table 2) was 100 mg. per hundred cubic centimeters (range, 70 to 146 mg.). Three patients had a moderate elevation of the fasting blod sugar (patients 6, 9 and 18); in only 4 instances was the fasting blood sugar below 80 and in no instance lower than 70 mg.

The blood sugar curves tended to form early peaks, with a rapid drop after two to three and a half hours to comparatively low figures. The maximum elevation of the blood sugar ranged from 130 to 392 mg. per hundred cubic centimeters; the average was 195 mg. The maximum elevation in this group is higher than that in the previous report because of patient 18, who had diabetes mellitus in association with the postgastrectomy syndrome. With exception of this patient, who showed a typical diabetic dextrose tolerance curve, all showed definite posthyperglycemic hypoglycemia, ranging from 50 to 80 mg. per hundred cubic centimeters, with an average of 60 mg.

With the exception of the patient with diabetes, no one showed glycosuria in the fasting state. Nevertheless, 12 of the nondiabetic persons spilled considerable amounts of dextrose in the course of the test, ranging from traces to 7.5 per cent. For nondiabetic persons glycosuria of this extent in the course of the dextrose tolerance test is unusual. These observations are in agreement with reports of other authors.[5]

The history of the patient (no. 18) with postgastrectomy syndrome and diabetes mellitus is briefly summarized because of the problem encountered in the control of the diabetes.

B. Z. was a 47 year old white woman. An appendectomy was performed in 1928 and partial gastrectomy for duodenal ulcer in 1932. The original weight was 178 pounds (80.7 Kg.). Before the gastric operation it was 140 pounds (63.5 Kg.), then gradually declined to 128 pounds (58.1 Kg.). Chief complaints were weakness, fatigue, precordial pain on walking and epigastric pressure, dizziness, palpitations and perspirations one and one-half to three hours after meals. In the past two weeks she also complained of pruritus vulvae, increased thirst and polyuria. An additional loss of weight (12 pounds [5.4 Kg.]) to 116 pounds (52.6 Kg.) occurred.

On physical examination the patient was decidedly underweight; the tongue was dry and red. Blood pressure was 125 mm. of mercury systolic and 80 diastolic. A soft systolic murmur was heard at the apex. The abdomen showed an epigastric scar; no masses were palpable. The liver and spleen were not enlarged. The urine gave a 4 plus reaction for sugar. Fasting blood sugar measured 180 mg. per hundred cubic centimeters. Blood count showed 68 per cent hemoglobin and 4,090,000 erythrocytes. The electrocardiogram was within normal limits. A dextrose tolerance test performed a few weeks later showed a typical diabetic curve (table 2). In the course of the test large amounts of sugar were found in the urine. Gastric analysis showed traces of free hydrochloric acid. Roentgenographic examination revealed a comparatively long stomach stump, with rapid emptying, and a normal small intestine.

The management of the diabetes met with difficulties. On a diet of 200 Gm. of carbohydrate, 100 Gm. of protein and 80 Gm. of fat and with the injection of 20 units of protamine zinc-insulin daily, the fasting blood sugar level decreased to normal figures of 80 to 104 mg. per hundred cubic centimeters. Nevertheless, glycosuria of 2 to 4 per cent persisted. The weight increased by 5.5 pounds (2.5 Kg.). The difficulty of dietary management was enhanced by postprandial discomfort, nausea and inability to consume regular meals. The patient found through her own observation that small feedings taken almost hourly were best tolerated.

*Comment.*—In a patient with postgastrectomy syndrome diabetes mellitus developed fifteen years after operation. The condition was characterized by hyperglycemia in the fasting state, pruritus vulvae, polydipsia and polyuria and additional loss in weight. The extremely high level of the dextrose tolerance test in a comparatively mild diabetes might have been the result of the metabolic disorder, as well as of the rapid absorption of dextrose by the small intestine, as seen in other, nondiabetic persons. The management of the diabetes was difficult because of the coexisting postgastrectomy syndrome.

It is of interest that most of the patients complained during the dextrose tolerance test of gastric and general symptoms resembling those occurring after meals. These symptoms could be classified as "early" and "late" postprandial symptoms. During the first one-half to one hour of the test epigastric pressure, fulness, nausea and occasional vomiting occurred. The symptoms subsided gradually to recur later in a somewhat different form. In this phase, in the second to third hour of the test, dizziness, perspiration, headaches, palpitations and other vasomotor symptoms were the leading complaints, resembling closely the classic symptoms of hypoglycemia.

### PSYCHOSOMATIC STUDIES

The majority of patients of this group presented stigmas of psychoneurosis, with tendency to fixation and overemphasis of symptoms. It seemed easy to attribute the "nervousness" to the poor general condition and loss of weight. In careful interviews, however, psychoneurotic trends could be traced back to the period preceding gastrectomy and even the onset of the disease. The following brief summary of the history of patient 15 illustrates the relationship between constitutional and psychogenic factors, the trauma of the operation and the development of the postgastrectomy syndrome.

In E. G., a 40 year old white woman, gastric symptoms developed nine years ago. Subtotal gastrectomy was performed one year ago; since then anorexia, postprandial distention, constipation, belching, dizziness and fainting spells occurred. Her normal weight was 138 pounds (62.6 Kg.); weight before the operation was 85.5 pounds (38.8 Kg.) and at the time of study 95 pounds (43.1 Kg.). The patient looked underweight and emaciated. Results of physical examination were essentially normal, with the exception of a mitral valvular lesion. The blood cell count showed 82 per cent hemoglobin, and 3,620,000 erythrocytes. The urine showed no abnormality. Results of dextrose tolerance test are shown in table 2.

*Psychiatric Study.*—The patient's father died at the time of her birth; the mother remarried when the patient was 5 years of age. She was in her youth "a happy, contented, fat girl." She had chorea and rheumatic fever at age of 9 and was hospitalized for several months. At age of 15 she ran away from home, after a love affair was discovered by her mother. She was married at 15½ years of age. She was pregnant twice; the first pregnancy ended in abortion when she was 17 and the second in a miscarriage. She divorced her husband because of increasing friction after eight years. A period of promiscuity followed. One year later, she met a man of another faith to whom her mother objected. Disregarding this objection, she has been living since then in a common-law marriage with the man. In 1938 an operation for vaginal bleeding was performed during which a three month pregnancy was found. This pregnancy terminated later in miscarriage. In 1939 hysterectomy was carried out for fibroids. After this operation symptoms of depression and anorexia occurred, with recurring episodes of retrosternal and epigastric pain before and after meals, which were relieved by vomiting. She lost 35 pounds (15.9 Kg.) in eight years. In 1947 subtotal gastrectomy for two gastric ulcers was done. The postoperative symptoms became more intense after the recent death of her mother. Tension and apprehension increased.

*Comment.*—During the interviews it became clear that patient had considerable guilt feelings caused by the common-law marriage, as well as the abortion and miscarriages. The development of anorexia and gastric symptoms followed closely surgical castration. This operation served as atonement for the patient's guilt feelings, but it created a new conflict situation inasmuch as her desire to have children was frustrated. In the course of the interviews, patient was able to discuss her problems freely and gained some insight. Subsequently, some of the "early" postprandial symptoms improved, while the "late" complaints remained unchanged.

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5. (*a*) Lapp, F. W., and Dibold, H.: Magentätigkeit in ihrer Beziehung zum Blutzuckerspiegel, Deutsches Arch. f. klin. Med. **173:** 550, 1932; Blutzuckerablauf in seiner Beziehung zum resezierten Magen, Klin. Wchnschr. **12:** 547 (April 8) 1933. (*b*) Kalk, H., and Meyer, P. F.: Blutzuckerspiegel und Magenresektion, Ztschr. f. klin. Med. **120:** 692, 1932. (*c*) Beckermann, F.: Ueber spontane Hypoglykämie nach Magenoperationen, Deutsche med. Wchnschr. **59:** 683 (May 5) 1933. (*d*) Lawrence, R. D.: Glycosuria of "Lag-Storage" Type: Explanation, Brit. M. J. **1:** 526 (March 14) 1936. (*e*) Evensen.[3h] (*f*) Gilbert and Dunlop.[3i] (*g*) Barnes.[3k] (*h*) Zollinger and Hoerr.[3l] (*i*) Footnote 3m. (*j*) Adlersberg and Hammerschlag.[4]

During treatment of this and other patients it became evident that early in their lives severe repressed conflicts played an important part. The operation had the symbolic significance of punishment for unconscious guilt feelings. The postoperative course *per se*, as well as the postgastrectomy symptoms, added insult to injury and certainly contributed to the development of an outspoken postgastrectomy syndrome. These symptoms created a considerable amount of uneasiness and anxiety, which frequently led to the fear of eating, with consecutive further deterioration of nutritional status. Thus, a vicious circle was perpetuated, in which the postprandial symptoms and the fear to eat were important factors.

The final clinical picture of a severe case imitated, both physically and psychologically, that of anorexia nervosa: a morose, self-centered, underweight patient with deeply set eyes and diminished cutaneous turgor, full of anxiety centering especially about the gastrointestinal tract. The low basal metabolic rate may well fit in, as seen in patient 4, whose basal metabolic rate was —11 to —19 per cent.

### PROPHYLAXIS AND THERAPY

Opinion is divided concerning prophylaxis of the postgastrectomy syndrome. Preoperative testing has been recommended for orthostatic hypotension in order to eliminate patients with "unbalanced vegetative nervous system" who may be candidates for the postgastrectomy syndrome.[31] In our opinion, patients with peptic ulcer, especially duodenal ulcer, who present a tendency to hypoglycemia, may be considered poor risks for subtotal gastrectomy; preoperative dextrose tolerance tests may prove advantageous. Corrections in operative technics have been suggested, e. g., changing from Billroth II to Billroth I,[31] or abandonment of the retrocolic Polya anastomosis in favor of a modified Hofmeister type of anastomosis,[31] while other authors attributed less importance to the employed surgical procedure.[31] Ogilvie summarized his opinion as follows:

> These requirements are satisfied by . . . (if we must have names, let credit be properly attributed) the high posterior Finsterer-Lake-Lahey modification of the Miculicz-Kronlein-Hofmeister-Reichel-Polya improvement of the Billroth II gastrectomy with a large valve and a small stoma.[6]

Greater agreement prevails in regard to treatment. To compensate for the rapid emptying or "dumping" of the gastric contents into the jejunum, which is responsible for the early symptoms, frequent and small feedings have been recommended. The "late" postprandial symptoms are favorably affected by a high protein, high fat diet, with moderate amounts of carbohydrate and, especially, avoidance of foods and fluids of high sugar content. Thus, the treatment of the late phase of the postgastrectomy syndrome resembles that used in "primary" hypoglycemia. We wish to stress the high protein content of the diet as an essential therapeutic factor. The slow and gradual release of carbohydrate from protein results in a moderate elevation of the blood sugar level and so prevents the secondary hypoglycemia. In addition to dietary management, administration of olive oil before meals,[31] ephedrine,[31] or atropine[7] has been recommended. In our experience, dietary management supplemented with vitamins and liver extracts resulted in symptomatic improvement and occasional gain in weight in some of the patients, while the majority was strikingly resistant to therapy. Atropine increased rather than relieved the discomfort. No reports are available as yet concerning the effect of vagotomy on the postgastrectomy syndrome. It may be mentioned, however, that patient 20, who underwent vagotomy and subtotal gastrectomy at the same time, had one of the severest cases of the group.

Recently, in our hospital, psychotherapy has been added to the management of the postgastrectomy syndrome. It may favorably affect the tension of the patients and thus lead to improvement of the somatic symptoms. It was of interest to note that only the "early" and not the "late" postprandial symptoms responded to psychotherapy.

### COMMENT

Clinical analysis of the symptoms encountered in 20 patients with partial gastric resection for peptic ulcer permitted a classification into "early" and "late" postprandial symptoms. The early symptoms were: epigastric pressure, nausea and fulness, eructation and belching, dizziness and occasional vomiting. These symptoms could be observed during eating, immediately after the meal or sometimes after a short interval. The late symptoms, occurring usually in the second or third hour after meals, were: headache, fatigue, weakness, perspiration, palpitation, dizziness, shortness of breath and, occasionally, precordial pressure. The change from vertical to horizontal position resulted sometimes in relief of the early as well as the late symptoms, so that some patients acquired the habit of resting after meals. Another difference between the early and the late symptoms was the response to eating: while the late symptoms were relieved by food, the early symptoms precluded any additional food intake.

The difference in the character and mechanism of the early and late postprandial symptoms[4] was confirmed by additional observations. One gained the impression that after partial gastrectomy many more patients experienced early postprandial symptoms similar to those encountered in our group. In the normal postoperative course, the majority showed some form of adaptation to the altered mechanism of digestion and became asymptomatic. Fortunately enough, only a comparatively small group retained the early postprandial symptoms for many years. In contrast, in many persons the late postprandial symptoms gradually developed in the later postoperative course, not infrequently many months or even years after gastric resection. The difference in the development of the early and late postprandial symptoms suggests different mechanism. Zollinger and Hoerr[31] confirmed our observation that two distinct syndromes must be differentiated, one appearing shortly after the ingestion of food, the other after a latent period of one hour or longer.

We are inclined to attribute the early postprandial syndrome to mechanical factors of the small stomach, with its rapid emptying, rapid filling and distention of the jejunum and the subsequent mesenteric iritation. Gastritis of the stump or especially of the stoma, as well as jejunitis, may be predisposing factors. The operative technic may have some bearing. In this connection filling and distention of the afferent loop, as observed in patient 20, should be mentioned. The importance of this factor is questionable.[2] It is difficult for us to understand that hypoglycemia as such may explain this phase of the postgastrectomy syndrome as Gilbert and Dunlop assumed.[3l]

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[6] Ogilvie, H.: Gastrectomy: A Human Experiment, Lancet 2:377 (Sept. 13) 1947.

[7] Glaessner, C. L.: Hyperglycemic Shock, Rev. Gastroenterol. 7:528 (Nov.-Dec.) 1940.

There is no evidence, on the other hand, that hyperglycemia *per se* can produce epigastric discomfort and occasional vomiting, as suggested by Glaessner ("hyperglycemic shock").[7] We emphasized in the previous publication that there is no other instance known in which hyperglycemia would lead to similar symptoms of shock[4]; Zollinger and Hoerr,[3l] Portis[8] and Gilbert and Dunlop [3l] shared this opinion.

The late postprandial symptoms are closely related to chemical factors, i. e., to the rapid and steep decrease in the blood sugar level. The clinical manifestations closely resemble typical hypoglycemia and are relieved by food. An additional confirmation is found in the experimental reproduction of the late postprandial symptoms of palpitation, perspiration and dizziness during the hypoglycemic phase of the dextrose tolerance test. The occurrence in patient 17 of attacks of angina pectoris several hours after meals, as well as during the late phase of the dextrose tolerance test and also after administration of insulin, illustrates this mechanism.

It is important to consider, however, that symptoms of hypoglycemia are not infrequently observed in ulcer patients not operated on, and occasionally in apparently normal persons.[3a-c] Evensen observed hypoglycemic symptoms in 30 per cent of his patients with gastroenterostomy, in about 15 per cent of patients with resected stomachs, in 8 per cent of patients with peptic ulcer not operated on and in 6 per cent of normal persons.[3h] Winkelstein and Hess observed a higher response to insulin in patients with duodenal ulcer than in normal persons and assumed an increased nuclear vagal irritability in the former.[9]

One has the impression that severe cases of the postgastrectomy syndrome are bound to occur in a group of persons who already before the operation have a tendency to hypoglycemia. Preoperative dextrose tolerance tests may prove helpful in singling out these persons as "poor operative risks" for gastric resection. In the postoperative course, these patients may acquire an additional sensitivity to hypoglycemia. Whether prolonged recurrent hyperglycemia results in the production of larger amounts of insulin, whether abnormal sensitivity to insulin develops, or whether the anti-insulin mechanisms (pituitary, adrenals) are insufficiently mobilized to counteract the rapid fall of blood sugar cannot be decided. On the basis of insulin-dextrose curves and epinephrine sensitivity tests, Barnes assumed that increased sensitivity to insulin is the main factor.[3h] It must be stressed, however, that not only the actual blood sugar level, but the rate and extent of the fall are of importance (Lawrence's "oxyhyperglycemia").[10]

Factors other than increased insulin sensitivity must also be considered. In our opinion, the posthyperglycemic hypoglycemia after gastrectomy is caused by a multiplicity of factors. The rapid elevation of the blood sugar level *per se*, caused by the rapid emptying and absorption by the small intestine, is one of them. This factor was responsible for the difficulty in management of patient 18, who had diabetes mellitus and had undergone partial gastrectomy. The tendency of ulcer patients to hypoglycemia is another factor. Abnormality of the insulin: anti-insulin balance, as well as abnormal psychologic response to hypoglycemia, may be an additional factor. Since the preceding diet is known to affect the character of the dextrose tolerance curves, ulcer diets, which are, as a rule, high fat diets, used prior to the test may be another factor responsible for the abnormal pattern.

In isolated instances patients of this group presented a syndrome of dyspnea, palpitations and headaches, which could be interpreted as anaphylactic shock. It must be considered that mechanically and physiologically altered digestion may occasionally lead to absorption of unchanged protein with the subsequent effect of anaphylaxis and shock. Observations of urticaria and other cutaneous manifestations, as well as intolerance of certain foods (milk, eggs), after partial gastrectomy may well represent anaphylactic or allergic phenomena.[11]

In this group of patients only occasionally large amounts of unabsorbed fatty acids and soaps and moderate amounts of undigested muscle fibers were discovered in the stools, while no evidence of disturbed starch absorption was observed. Although none of the patients presented steatorrhea resembling sprue, in one instance a flat vitamin A tolerance curve, as found in sprue, was encountered. This observation indicates that disturbed intestinal absorption may be a factor which should not be overlooked.[12] These changes are apparently more pronounced after total gastrectomy.[13]

## SUMMARY

The symptoms encountered in a group of 20 patients who, after partial gastrectomy for ulcer, presented difficult nutritional problems, are divided into two groups: "early" and "late" postprandial symptoms. The early symptoms are epigastric pressure, nausea and fulness, eructation and belching, dizziness and occasional vomiting. They are attributed to mechanical factors: distention and rapid emptying of the small stomach and overflooding of the small intestine. Gastritis of the stump as well as jejunitis may be predisposing factors. The late symptoms are headaches, fatigue, weakness, perspiration, palpitation, dizziness, shortness of breath and, occasionally, precordial pressure. These symptoms are attributed to chemical factors: hypoglycemia secondary to the exaggerated postprandial hyperglycemia. The possibility of increased insulin sensitivity is discussed.

The postgastrectomy syndrome is caused by a combination of these factors with distinct psychoneurotic disturbances. The postoperative course, as well as the postgastrectomy symptoms, adds insult to injury and contributes to the development of a vicious circle, wherein the postprandial distress and the fear to eat are outstanding factors. The clinical, nutritional and psychologic aspects of treatment of these patients, frequently involving great difficulties, as well as the possibility of prophylaxis, are discussed.

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[8] Portis, S. A., in discussion on Zollinger, and Hoerr.[3l]

[9] Winkelstein, A., and Hess, M.: The Effects of Insulin Hypoglycemia on Gastric Secretion in Duodenal Ulcer Patients and Normals, read before the American Gastro-Enterological Association, Atlantic City, May 1, 1948.

[10] Footnote 3m. Lawrence.[3l]

[11] Boller, R.: Der operierte Magen, Vienna, Urban & Schwarzenberg, 1947.

[12] Wollaeger, E. E.; Comfort, M. W.; Weir, J. F., and Osterberg, A. E.: The Total Solids, Fat and Nitrogen in the Feces: II. A Study of Persons Who Had Undergone Partial Gastrectomy with Anastomosis of the Entire Cut End of the Stomach and the Jejunum (Polya Anastomosis), Gastroenterology 6:93 (Feb.) 1946.

[13] McDonald, R. M.; Ingelfinger, F. J., and Belding, H. W.: Effects of Total Gastrectomy in Men, New England J. Med. 237:887 (Dec. 11) 1947.

## ABSTRACT OF DISCUSSION

Dr. Ralph Colp, New York: The opponents of subtotal gastrectomy have stated that following this procedure many patients fail to gain weight and show a symptom complex which has become known as the postgastrectomy or "dumping" syndrome. In my experience with gastric resection for peptic ulcer, this complication has not been frequent. When it has occurred it has been extremely difficult to treat successfully. Dr. Adlersberg and Dr. Hammerschlag presented an excellent study of the early and late symptoms, and of the mechanism of the postgastrectomy syndrome in 20 cases. It would be highly desirable to avoid surgical intervention in those patients in whom the postgastrectomy syndrome might develop, but since surgery is concerned only with medical failures, what else can be done for these patients suffering from intractable pyloric stenosis and recurring episodes of severe hemorrhage? Moreover, it is extremely doubtful that patients with duodenal ulcer and a preoperative tendency to hypoglycemia should be considered poor risks for subtotal gastrectomy. More than likely, similar symptoms would develop in this group from a gastroenterostomy, in addition to possible subsequent gastrojejunal ulceration. Even vagotomy as a solitary procedure, while it may not be followed by the "dumping" syndrome, may have other postoperative features almost as undesirable. I feel reasonably certain that the type of technical procedure employed in subtotal gastrectomy by experienced and competent surgeons plays little or no role in the incidence of the "dumping" syndrome, for all clinics, each with a special technic, have encountered this train of postoperative symptoms. The early postprandial symptoms referred to by the essayists are not infrequent. They are undoubtedly due to mechanical factors incident to operation and are spontaneously corrected by gradual adaptations to the altered gastric physiologic function. Frequent small feedings usually allay the symptoms. It is the treatment of the late postprandial complications which presents a challenge. In the majority of these cases, as the authors showed, the syndrome is probably the result of a rapid and sharp decrease of the blood sugar levels. Unfortunately, the cause of this hypoglycemia is still obscure. In an attempt to correct the hypoglycemia secondary to an exaggerated postprandial hyperglycemia, Dr. Adlersberg and Dr. Hammerschlag used a diet high in protein content supplemented with vitamins and liver extract. They candidly stated that the majority of these patients are resistant to therapy. This strikes a sympathetic chord in the surgeon who has seen a few of these unfortunate persons remain miserable despite all therapeutic efforts, even psychotherapy.

Dr. Joseph B. Kirsner, Chicago: One of the most curious aspects of this syndrome is its apparently low incidence. Undoubtedly, more cases would be discovered on closer observation. The question remains, however, as to why some patients are susceptible and others are not. One explanation is the increased production of insulin and abnormal sensitivity to it. Some of you may recall the complete study of 3 patients in whom a total gastrectomy had been performed, with no symptoms of the type described. Although hyperglycemia occurred early in the oral dextrose tolerance test, hypoglycemia did not develop subsequently. The psychogenic component mentioned by Dr. Adlersberg may be a determining factor. Emotional states are present in many cases and they contribute significantly to the symptoms. In the light of these considerations, it would be desirable to investigate not only patients with symptoms but also persons without distress after gastric resection, using the same methods of study employed by Dr. Adlersberg, so as to determine significant differences and precipitating factors. I think the classification of early and late symptoms and the differentiation of the mechanisms involved are helpful not only in understanding this syndrome but also in providing a rational basis for therapy. With regard to the mechanism of the late symptoms, it may be of interest to recall that Kalk in 1932 apparently reproduced the syndrome in a normal subject by means of intrajejunal intubation and alimentation. I noted in Dr. Adlersberg's series 1 patient in whom a vagotomy had been performed in addition to gastric resection. The question, therefore, may be raised: What role do the vagus nerves play in this syndrome? As a matter of fact, similar symptoms have been noted in patients with gastrectomy and vagotomy, in persons with vagotomy and gastroenterostomy, and, indeed, in patients subjected only to vagotomy. It seems apparent, therefore, that the vagus nerves and so-called vagotonia play no role in the pathogenesis of this syndrome. I also have been impressed with the difficulty in restoring the weight of patients following gastrectomy. This may be attributed to faulty absorption of food, occasioned by rapid passage through the bowel. Abnormalities in absorption undoubtedly are important in the pathogenesis of the postgastrectomy syndrome.

Dr. Otto Porges, Chicago: Dr. Adlersberg and Dr. Hammerschlag observed a new point in the postgastrectomy syndrome as far as the differentiation between early and late symptoms is concerned. The late symptoms, according to their opinion, are caused by hypoglycemia. The observation that the syndrome may depend on hypoglycemia was published fifteen years ago by Lapp and Dibold. At that time I checked this theory and observed that the symptoms and complaints of the patients coincide with the early postprandial time when the blood sugar level is either elevated or normal. The most important phase of the syndrome is the early postprandial time. Furthermore, twenty years ago I studied this syndrome and described it in conection with my papers about what I called enteritis or jejunitis. Dr. Adlersberg was my student at that time, and he may recall these studies. He may know that the signs of enteritis which I described are to be seen in postgastrectomy patients just as well. But I have seen patients without gastrectomy who had enteritis, and they showed these same symptoms which have been described as postgastrectomy syndrome. In those cases a distention of the jejunum does not play a part either because, as I ascertained, there was normal filling of the stomach and small intestine. Therefore, the most important factor in the postgastrectomy syndrome is jejunitis, and the jejunitis, of course, is caused by indigested food that damages the small intestine. If one treats the jejunitis accordingly, one can relieve the distress and the patient can be cured.

Dr. Thomas E. Machella, Philadelphia: I shall confine my remarks to the symptoms of the "dumping" syndrome which occur at the end of a meal or shortly thereafter. During the past six months my colleagues and I studied 15 such cases. The symptoms manifested during the early postprandial period were similar to those reported by Dr. Adlersberg as occurring during the late postprandial period. They could be reproduced by inflating a balloon in the jejunum; in other words, by mechanical distention. However, mechanical distention of the jejunum by the bulk of a meal itself fails to explain why some meals produce symptoms while others of equivalent volume do not. This fact led us to suspect that a physical property, perhaps the osmotic pressure, of one or more constituents of a meal determined whether or not symptoms occurred. Our suspicions were confirmed when we were able to reproduce the symptoms in normal subjects and in postgastrectomy patients by the introduction into the jejunum of not only hypertonic glucose and sucrose solutions but also sodium sulfate, magnesium sulfate and amino acid mixtures. Such solutions increase in volume by dilution and thus distend the intestinal loop to produce symptoms. The administration of atropine in physiologic doses about an hour before a mixed meal prevented "dumping" symptoms in 14 of our patients. They were not prevented, however, by vagotomy.

Dr. H. Necheles, Chicago: Dr. Adlersberg proposed the term "postgastrectomy syndrome." I do not think that term describes the picture too well because it includes anemia, marginal ulcer and a number of other observations. I think the condition should be called "postprandial syndrome," which may be subdivided into "early" and "late" postprandial syndrome. When my associates and I compared the results of intravenous and oral dextrose tolerance tests in a group of patients with postprandial syndrome, we found to our surprise that the results of the intravenous tests were normal; as a matter of fact the curves for all intravenous dextrose tolerance tests were similar. There was little or no hypoglycemia within two hours, and no early or late postprandial symptoms were observed. With the oral dextrose tolerance tests, we saw early and late symptoms. Blood sugar levels rose higher than normal, followed by hypoglycemia down to 20, and in 1 case to 17, mg. per hundred cubic centimeters. We also performed oral fructose tolerance tests and observed distinct early postprandial symptoms, unrelated to blood sugar levels. The theory of hyperglycemic shock of Glaessner and Winkelstein and Hess is untenable in our opinion. We also tested the effect of atropine on the postprandial syndrome. It modified the early but not the late symptoms, and it did not abolish hypoglycemia. We also performed tests in which we used saccharin instead of dextrose, but we found no postprandial symptoms and no effects on the blood sugar. We know that under stress the autonomic nervous systems, sympathetic and parasympathetic, go into action. Thus, when a patient is apprehensive, and when an inflamed gastrojejunal mucosa is irritated, hyperglycemia may follow, due to sympathetic reflexes and to epinephrine. These sympathetic manifestations overshadow the parasympathetic effects. When the sympathetic effects decrease, parasympathetic stimulation may become evident, and hypoglycemia may be due in part to vagal activity. Therefore, the early and late postprandial symptoms are somewhat complicated by the reactions of both autonomic nervous systems.

Dr. Hyman I. Goldstein, Camden, N. J.: In his list of pioneer operations on the stomach, Dr. Adlersberg omitted that of Jules Péan, French surgeon, who performed the first (April 5, 1879) gastric resection for cancer of the pylorus (*Gaz. de hôp.*, Paris **52**:473-475, 1879; *Bull. Acad. de méd.*, Paris, Section 2 **8**:1194-1197, 1879). Billroth did his first pylorectomy in 1881 (*Wien. med. Wchnschr.* **31**:161-165, 1881; **33**:1213-1215, 1883; **34**:880-890, 1884). Dr. Adlersberg will be interested in the successful gastrotomy performed by the lithotomist Daniel Swabe (or Schwalbe) who operated on the peasant André Grundheide July 9, 1635—probably the first successful gastrotomy—unless prior credit be given to Master Florian Matthis for his successful gastrotomy in 1602! At the temple of Aesculapius at Epidaurus, Greece, six pillars engraved with the stories of patients date from the close of the fourth century B. C. On the second pillar appears case 7: "A man with an ulcer in his stomach. He incubated and saw a vision; the god seemed to order his followers to seize and hold him, that he might incise his stomach. So he fled, but they caught and tied him to the door knocker. Then Aesculapius opened his stomach, cut out the ulcer, sewed him up again and loosed his bonds. He went away whole, but the floor of the chamber was covered with blood." This is probably the earliest reference to a gastric resection for ulcer of the stomach, although Diocles circa 350 B. C.) described the typical symptomatology of peptic ulcer, as quoted by Galen (130-201 A. D.)! I hope no overenthusiastic young surgeon, after hearing Dr. Adlersberg's presentation, will do subtotal gastric resection or vagotomy for the treatment of diabetes!

Dr. David Adlersberg: The proper selection of patients with peptic ulcer for gastrectomy, or vagotomy, or partial gastrectomy plus vagotomy, or gastroenterostomy plus vagotomy, is a problem that must be solved in future studies. We venture to say that vagotomy is not the answer for the treatment of the postgastrectomy syndrome. Our group of patients was presented for discussion because of the difficulties encountered in managing them. In many instances, the body weight of the patients was 90 to 100 pounds (40.8 to 45.4 Kg.); they were cripples, unable to eat, work or gain weight. During an observation period of one to five years, and despite various types of diet, liver and vitamin medication, and more recently, psychotherapy, the therapeutic results were, as a whole, unsatisfactory. The most extensive study of carbohydrate metabolism in peptic ulcer, after gastroenterostomy and after gastric resection, was done by Evensen. Hypoglycemia is not infrequently observed in patients with peptic ulcer, especially duodenal ulcer, and occasionally in apparently normal persons. I should like to emphasize that the complex symptoms of these patients are caused by a combination of factors rather than by one. Mechanical factors, inflammatory changes of the stomach and small intestine (gastritis, jejunitis), chemical alterations and psychologic motives must be considered. I read recently Dr. Machella's studies, but our results with atropine in the treatment of the postgastrectomy syndrome were not satisfactory. The complaints of the patients were enhanced by a dryness of the mouth and throat. Dr. Necheles' observations on the effect of oral and intravenous administration of glucose are interesting, and we look forward to his publication on this subject.

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# CURE OF CHRONIC VIVAX MALARIA WITH PENTAQUINE

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and
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Chicago

The treatment of malaria has been characterized by failure to obtain permanent cure in many cases, in spite of the fact that either quinine or quinacrine hydrochloride ("atabrine *di*-hydrochloride") will afford prompt relief of the acute attack. Post-treatment recurrences or relapses occur in a high percentage of patients with vivax and quartan malaria particularly.

During World War II an intensive research program was inaugurated to discover a curative nontoxic drug which could be administered in a practical manner. This program was conducted under the auspices of the National Research Council with many participants. Although many new compounds were discovered, the present report is concerned only with pentaquine (8-[5-isopropylaminoamylamino]-6-methoxyquinoline).[1] Highly successful results were obtained following its use in the treatment of 185 vivax-infected ex-servicemen after all other known methods of therapy had failed.

Pentaquine was synthesized by Drake [2] and was first shown to possess highly antimalarial curative properties in man by Alving and co-workers.[3] It is a derivative of the longer known pamaquine naphthoate ("plasmochin"), which some workers stated was capable of reducing the relapse rate in vivax malaria. However, because of its toxicity, pamaquine naphthoate was removed from usage for the military servicemen. Careful studies in animals and man revealed that pentaquine was a definite improvement, as it was not as toxic as pamaquine naphthoate and had considerably more therapeutic activity. One curious feature of its curative activity was the necessity for simultaneous administration of quinine. Alving and co-workers reported that a dosage of 2.0 Gm. daily of quinine taken concurrently with 60 mg. of pentaquine for fourteen days was sufficient to cure a high percentage of patients infected naturally with a strain of South Pacific malaria. This dosage of pentaquine was attended by sufficient toxic reaction to require hospitalization. It must also

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From the Department of Medicine, the University of Chicago.

Miss Amy Boyd, Student Health Service Laboratory, University of Chicago, assisted in this study.

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[1] This drug was supplied by Abbott Laboratories, North Chicago, Ill.

[2] Loeb, R. F.; Clark, W. M.; Coatney, G. R.; Coggeshall, L. T.; Dieuaide, F. R.; Dochez, A. R.; Makansson, E. G.; Marshall, E. K., Jr.; Marvel, C. S.; McCoy, O. R.; Sapero, J. J.; Sebrell, W. H.; Shannon, J. A., and Carden, G. A., Jr.: Activity of New Antimalarial Agent, Pentaquine (SN 13,276): Statement Approved by Board of Coordination of Malarial Studies, J. A. M. A. **132**:321 (Oct. 12) 1946. Wiselogle, F. Y.: A Survey of Antimalarial Drugs, 1941-1945, Ann Arbor, Mich., Edwards Brothers, Inc., 1946.

[3] Alving, A. S.; Craige, B., Jr.; Jones, R., Jr.; Whorton, C. M.; Pullman, T. N., and Eichelberger, L.: A St[illegible] Effectiveness of Several 8-Aminoquinolines in [illegible] Malaria (Chesson Strain), J. Clin. Investigati[illegible] 1948.

be emphasized that the cures occurred in prisoners who had volunteered as subjects under the condition that they be treated early in the initial attack or first relapse. As such, they were probably much more resistant to therapy than those who had acquired specific immunity by virtue of repeated attacks. With this possibility in mind, an attempt was made to cure the infected ex-servicemen by decreasing the dosage of pentaquine to 30 mg. daily, which would reduce the likelihood of toxic symptoms and allow the patient to remain ambulatory.

### MATERIAL AND METHODS

*Subjects.*—The present study was initiated in July 1946 and only men whose blood smears were positive for malaria parasites during a relapse were treated. This was necessary to rule out the possibility of a spontaneous cure. To date, 185 subjects have been treated, of whom 170 have been followed for six months or longer and 15 for approximately four months. The infection in each was diagnosed as vivax malaria. In this group, 154 had acquired their malarial infection in the Southwest Pacific, 14 in the Orient, 7 in the Mediterranean area and 3 in the West Indies. In 2 patients malaria resulted from blood transfusions and in 5 the source was unknown. The histories showed that the number of relapses prior to treatment with pentaquine varied from 1 to 50, although these data cannot be considered reliable, as most of the patients could not recall the exact number. Also they subjected themselves to therapy at the first symptoms referable to malaria, thus undoubtedly aborting many relapses. However, there was little doubt about the date of the initial attack—6 gave 1942 as the year; 34 initial attacks occurred in 1943, 34 in 1944, 56 in 1945, 21 in 1946, 4 in 1947 and 1 in 1948. For 29 patients the date was unknown. Many of them experienced their first attack in the United States after their return, usually after discontinuing suppressive therapy. Another significant and consistent point was that practically all the subjects from the Southwest Pacific area stated that relapses occurred regularly every four to six weeks.

An attempt was made to evaluate previous therapy, but lack of sufficient records and poor memory gave little information other than that quinine, quinacrine hydrochloride, chloroquine diphosphate, arsenicals and pamaquine naphthoate had been used. "Atabrine" was most commonly used. Within the past two years, many had taken and preferred chloroquine, since it was less troublesome, although it did not result in cure or diminish the number of attacks.

*Dosage.*—As stated previously, in the present investigation the dosage of pentaquine was 30 mg., or 1 tablet, three times daily. This was given simultaneously with 2.0 Gm., or 2 tablets, of quinine sulfate three times daily. Both were administered for fourteen days. Since the amount of quinine was chosen arbitrarily and because many of the first patients treated complained of symptoms of cinchonism, the amount given was reduced to one-half, or 1.0 Gm. per day. This reduced dosage was given to 67 patients in the latter part of the study.

### RESULTS

*Toxicity.*—Initial daily and then weekly blood counts revealed no abnormalities except a minor lowering of the red cell count. Since all treatments were initiated during an acute relapse, it was not possible to ascribe the anemia to the drug, as the degree of the change was compatible with that usually observed during an infection. Only 4 men of the 185 refused to complete the therapy, the reason given being gastrointestinal upset. Forty-three of the patients had some toxic reaction. The predominant complaints were tinnitus, dizziness, gastrointestinal cramps and deafness, chiefly attributable to the quinine. In 1 patient an apparent drug rash developed on the second day of the treatment, but he subsequently completed the full course with no recurrence of the rash. One Negro who was treated had no blood or other changes. This incidental comment is given because there is information that hemolytic crisis has occurred in 2 subjects of that race following use of pentaquine.

*Relapses.*—Of the 185 patients treated, there were verified failures in 10, with blood smears yielding organisms, and 10 more had chills but no parasites could be detected in their blood smears. From the reports to date, the dosage of quinine when decreased from 2.0 to 1.0 Gm. seemed to be just as effective.

*Subjective Symptoms.*—Although 163 of the 185 had no further objective findings referable to malaria, of considerable significance to us were the enthusiastic reports from the subjects or their physicians concerning the striking relief from the subjective symptoms associated with chronic malaria. Immediate and significant gain in weight was noted in 46 men, in some cases 25 to 30 pounds (11.3 to 13.6 Kg.). Many noted the disappearance of persistent headaches which previously had not responded to any therapy. Practically all commented on an improved feeling of general well-being.

### SUMMARY

1. Pentaquine, 30 mg. daily, and quinine, 2.0 Gm. daily, later reduced to 1.0 Gm. daily, taken simultaneously for fourteen days, have resulted in the termination of relapsing vivax malaria in 163 of 185 infected ex-servicemen, although the majority were experiencing relapses every four to six weeks prior to treatment.

2. The therapeutic regimen was an ambulatory one and did not require interruption of normal activities.

3. Toxic reactions encountered were not sufficient to cause concern and were largely those commonly associated with the use of quinine.

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## ABSTRACT OF DISCUSSION

Dr. Alf S. Alving, Chicago: As Dr. Coggeshall told you, pentaquine, which is closely related chemically to pamaquine naphthoate ("plasmochin"), is the only other drug beyond the experimental stage that has definite curative properties in vivax malaria. Pentaquine is at least as effective as pamaquine and is less toxic. The toxicity of pamaquine and pentaquine at dosages of 30 mg. per day is usually slight. The ordinary symptoms, such as abdominal pain and even neutropenia, which sometimes occur in dosages of 60 mg. of either drug, are seldom serious. The most dangerous toxic symptom is the effect on the red blood cells. In about 5 per cent of Negroes or persons of mixed racial extraction to whom pamaquine is administered in dosages as low as 30 mg. per day hemolytic crises develop. Acute hemolytic anemia is less frequent in the white group, but does occur. With pentaquine this dangerous complication appears to be less frequent. It has not been observed below a dosage of 60 mg. However, when it does develop, the drug must be stopped immediately. Therefore, these drugs must be used with caution. The margin between their effective therapeutic dose and their toxic dose is relatively small. The differences between therapeutic results obtained in heavily infected "nonimmune" white volunteers at Stateville Penitentiary and in the patients that Dr. Coggeshall has reported on are probably due to greater immunity of his patients; but the factors of strain, susceptibility and sporozoite dosage cannot be excluded. There is no question, however, that the dosage of pentaquine required for cure of the experimental infection is greater than that required in most instances of naturally acquired infection. The usefulness of pentaquine will primarily be limited to persons who have returned from endemic areas and who are going to live in places where chances of reinfection are very low. A curative drug, to be effective in the field, should also have suppressive properties because reinfection is almost certain. Pentaquine is too toxic to be used for chronic suppression of malaria but may have limited value in the field. In small nontoxic dosages it abolishes gametocytes of both falciparum and vivax malaria. The abolition of gametocytes will prevent spread of the infection from man to mosquito.

DR. L. T. COGGESHALL: In regard to anemia, 40 per cent of the cases were observed in our own laboratory. The daily red blood cell counts and hemoglobin determinations revealed no more anemia in the patients treated with pentaquine than one encounters in acute attacks of malaria. There was great relief from one subjective symptom. One of the most annoying symptoms to patients with chronic malaria is the recurrence of severe intractable headaches. We found that on giving pentaquine not only did the relapses no longer occur, but, according to many patients, for the first time in several years the headaches no longer existed. Regarding immunity of these patients, we selected a group of 21 patients who were treated with the drug, and in an attempt to prove they had been cured they were reinoculated with a homologous strain. These patients had been treated from three months to two years prior to reinoculation, and in each instance malaria developed on reinoculation; thus cure had been accomplished also. Once the infection has been eradicated in human malaria the immunity is of exceedingly short duration.

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# EMERGENCIES ENCOUNTERED IN THE NEONATAL PERIOD

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Emergencies encountered during the newborn period are many and varied. An attempt to discuss in detail all of the hazardous situations met during this critical period would require far more space and time than are allotted to this brief paper. Table 1 is an attempt to classify these conditions on an etiologic basis. A glance at this formidable list emphasizes the fact that one must choose those conditions which promise most profitable discussion. It seems logical, then, to devote the major portion of this paper to a few of the most commonly seen pathologic conditions. A review of neonatal mortality studies published recently indicates that relatively few diseases account for most of the deaths during this period.

Table 2 is a composite study of such reports.[1] It emphasizes the fact that the four chief causes of death are: (1) prematurity, (2) anoxia, including the various diagnoses (atelectasis, asphyxia and pulmonary deaths), (3) trauma, resulting chiefly in intracranial injury, and (4) congenital anomalies. Other less frequently encountered emergencies will be briefly discussed, namely, infection, blood loss and adrenocortical aplasia.

Table 3 is a statistical study of the neonatal deaths as diagnosed clinically or by autopsy in 17,421 living Negro babies weighing more than 1,000 Gm., born at the municipal hospital in Atlanta. These figures, in the main, are in agreement with the statistics presented in chart 2. However, there are some interesting and rather striking differences which are apparently attributable to race. The number of deaths due to anomalous development are considerably lower than most figures published for this age group. A more detailed examination of the anomalies encountered among these Negro infants will be given later, when deaths due to developmental error are discussed in detail. Even more striking is the fact that only 1 case of erythroblastosis was observed throughout the seven year period during which these statistics were collected. The high incidence of prematurity is striking and has a devastating effect on mortality statistics, as shown in the extremely high occurrence of intracranial injury.

## PREMATURITY

Prematurity can hardly be classified as an emergency except in those infants exhibiting anoxia and in a not inconsiderable number who show evidence of acid-base imbalance. For these reasons and for lack of space the discussion of the care of premature infants will be omitted, although much of what will be written later regarding asphyxia and intracranial injury is definitely applicable to this group of patients.

## ANOXIA

Undoubtedly, the most frequently encountered emergency in the neonatal period is that of oxygen want. Although many causative factors are involved, asphyxia and atelectasis are the chief concern. Resuscitation of the asphyxiated newborn infant still remains primarily in the province of the obstetrician, although the pediatrician and anesthesiologist have made valuable contributions. This is as it should be. Except in certain of the large teaching centers the obstetrician and his staff are the persons immediately on hand and therefore are the ones who must administer the lifesaving measures.

Flagg's[2] classification of asphyxia seems to be the one of most practical value from the therapeutic point of view. Table 4 presents this general outline. If such a classification be kept constantly in mind, the indications for certain types of therapy become immediately obvious and, on the other hand, one is much less prone to institute certain drastic types of resuscitative measures which, if the baby be so classified, are clearly contraindicated.

Little and Tovell[3] have given a definitive résumé of important opinions held by various workers on the subject, with an extensive bibliography. I shall borrow freely from their work in my discussion.

The technics of resuscitation vary considerably. However, there are certain basic principles on which all are agreed: first, the patency of the air passages must be maintained, and, second, oxygen must be delivered to the lungs. The methods by which these goals are accomplished are subject to controversy.

Table 5 is taken from the work of Flagg and the review by Little and Tovell. Included are uniformly accepted methods as well as certain procedures which are controversial. Among the latter may be mentioned the endotracheal catheter, which may be inserted either under direct laryngoscopy or by palpation. Opinion as to its use is variable—from that of Torpin,[4] who employs the direct method of intubation and stated that 6 to 10 per cent of infants require such resuscitation, to others who feel that the intubation of the larynx of the newborn is an unnecessary procedure and may indeed prove harmful unless employed by the most skilled persons.

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Professor of Clinical Pediatrics, Emory University.

Read before the Section on Pediatrics at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

[1] Potter, E. L.: The Lessons to Be Learned from a Study of Infant Deaths, J. A. M. A. **124**: 336 (Feb. 5) 1944. Labate, J. S.: A Study of Causes of Fetal and Neonatal Mortality on the Obstetric Service of Bellevue Hospital, Am. J. Obst. & Gynec. **54**: 188 (Aug.) 1947. Assali, N. S., and Zacharias, L. F.: Fetal and Maternal Mortality, Am. J. Obst. & Gynec. **54**: 651 (Oct.) 1947. Drillian, C. M.: Studies in Prematurity: III. Stillbirths and Neonatal Deaths, J. Obst. & Gynaec. Brit. Emp. **54**: 452 (Aug.) 1947.

[2] Flagg, P. J.: The Art of Resuscitation, New York, Reinhold Publishing Corporation, 1944.

[3] Little, D. M., and Tovell, R. M.: Collective Review: The Physiological Basis for Resuscitation of the Newborn, Internat. Abstr. Surg. **86**: 417, 1948; in Surg., Gynec. & Obst., May 1948.

[4] Torpin, R.: The Care of the Fetus During Labor, J. A. M. A. **124**: 343 (Feb. 5) 1944.

In the clinic at Emory University the tracheal catheter is employed rarely, and only in the stage of flaccidity. It is introduced by palpation and not by direct laryngoscopy. The technic is mastered by the resident physician without great difficulty. We feel at times that the measure is life saving.

TABLE 1.—*Cause or Location, Emergencies Encountered in Newborn Infants*

Condition

- I Anoxia
    - Asphyxia, atelectasis
    - Obstruction of air passages: mucus, amniotic fluid, tumor, cyst, atresia, laryngeal web
    - Pulmonary disease: infection, pneumothorax, diaphragmatic hernia
    - Heart disease
- II Injury
    - Central nervous system: intracranial or subdural hemorrhage, nerve, phrenic paralysis
    - Respiratory tract: pneumothorax, hemorrhage
    - Bone: skull, vertebra
    - Endocrine: adrenal hemorrhage
- III Anomalies
    - Central nervous system; encephalocele, spina bifida, meningocele
    - Gastrointestinal tract: obstructive lesions, meconium ileus, malrotation, omphalocele
    - Respiratory tract: laryngeal stenosis, web, tracheal atresia, diaphragmatic hernia
    - Cardiovascular
    - Urinary tract: obstructions of urethra
    - Endocrine: adrenocortical aplasia
- IV Blood Loss
    - Hemorrhage: umbilical
        - Pharynx, respiratory tract, central nervous system due to injury
        - Gastrointestinal tract: ulcer, volvulus, diverticulum
    - Hemolytic anemia: erythroblastosis, congenital hemolytic anemia, sickle cell anemia
    - Thrombopenia, hypoprothrombinemia, hemopoietic aplasia
    - Infection: syphilis, sepsis
- V Infection
    - Epidemic diarrhea, sepsis, meningitis, tetanus
- VI Metabolic Diseases
    - Tetany, hypoglycemia, acidosis

Mechanical resuscitators are of doubtful value. Positive pressure up to 16 mm. of mercury with negative pressure to 9 mm. of mercury is advocated. Such pressure at times appears incapable of expanding the neonatal atelectatic lung and yet at other times seems sufficiently great to cause alveolar rupture and emphysema. Although such mechanical resuscitators are available in our delivery room, my co-workers and I depend primarily on mouth to mouth resuscitation and occasionally on the endotracheal catheter. Even these simple measures may result in damage to lung tissue, if too enthusiastically executed, without adequate care to protect the delicate alveolar sac from too great pressure. Torpin's[4] pocket insufflator with weighted valve, which controls the pressure of air or oxygen to the lungs at 20 cm. water, is a helpful adjunct, as is the simple and inexpensive apparatus designed by Graber[5] which limits the pressure of oxygen delivered to the lungs by a column of water 12 cm. deep over which the gas flows and to which the main flow is connected by a T-shaped glass tube.

The use of carbon dioxide is no longer advocated in the majority of clinics, although Henderson's[6] work still has some staunch supporters. I feel that oxygen is the primary need and that carbon dioxide is contraindicated.

Finally, drugs appear to have little, if any, value in this field. I occasionally resort to the use of epinephrine or nikethamide. I have never been convinced of their value. After an exhaustive review of the literature, Little and Tovell concluded that carbon dioxide should not be used and that drugs may do more harm than good.

The etiologic factors concerned in asphyxia are widely variable, depending on pathologic states in the mother, on abnormal conditions during labor and delivery and on pathologic conditions in the infant. A full discussion of these factors is beyond the scope of this paper; however, I would like to touch on one controversial point—the use of analgesics and anesthesia during labor. I have had the opportunity of studying the charts and seeing many of the infants delivered of mothers who have received paraldehyde in addition to meperidine hydrochloride and scopolamine. These patients were delivered at Emory University Hospital, chiefly by Dr. R. A. Bartholomew and his associates. They have permitted me to present the statistical data from approximately 2,000 such deliveries. Briefly, this routine procedure of sedation may be stated as follows: in the primipara, when dilatation has reached about 3 cm., $\frac{1}{100}$ grain (65 mg.) of meperidine hydrochloride and $\frac{1}{200}$ grain (32.5 mg.) of scopolamine are administered hypodermically. Membranes are ruptured about one hour later. Two to three hours later, when dilatation is about 5 cm., 24 cc. of paraldehyde is given by mouth. Posterior pituitary given intranasally maintains uterine contractions at 3 to 4 per minute. When crowning is complete, ether is administered during the last twenty to thirty minutes of delivery. Ninety to 95 per cent of women so treated experience complete amnesia. In the multipara, meperidine hydrochloride and scopolamine are given in a similar manner; however, membranes are not ruptured and paraldehyde is administered one-half to one hour later.

TABLE 2.—*Fetal and Neonatal Mortality Studies*

| | Assali and Zacharias (1947) | | Labate (1947) | | Drillien (1947) | | Potter (1944) | | Roberts (1948) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Per Cent | | Per Cent | | Per Cent | | Per Cent | | Per Cent |
| Total deliveries..... | 15,088 | .... | 11,669 | .... | 7,599 | .... | 27,406 | .... | 17,421* | .... |
| Stillbirths.... | 402 | 2.68 | 312 | 2.67 | 373 | 4.9 | 614 | 2.25 | ...... | .... |
| Neonatal deaths....... | 271 | 1.82 | 802 | 4.8 | 204 | 2.68 | 559 | 2.03 | 539† | 3.09 |
| Total deaths....... | 673 | 4.5 | 1,114 | 7.47 | 577 | 7.58 | 1,173 | 4.28 | ...... | .... |
| Causes of Death (Percentage) | | | | | | | | | | |
| Prematurity. | 49.50 | | 27.6 | | 19.1 | | 25.6 | | 24.5 | |
| Respiratory or anoxia.... | 15.78 | | 22.5 | | 22.1 | | 28.7 | | 16.3 | |
| Intracranial injury........ | 10.70 | | 16.9 | | 31 or 3.9 ‡ | | 13.0 | | 36.1 | |
| Congenital anomalies.... | 4.8 | | 7.4 | | 20.1 | | 11.1 | | 6.3 | |
| *Erythroblastosis*..... | ..... | | 1.7 | | 7.8 | | 2.5 | | 0.18 | |
| Infection..... | ..... | | 1.1 | | .... | | 4.7 | | 4.5 | |
| Unknown.... | 19.22 | | 0.8 | | .... | | .... | | .... | |

* Negroes.

† Of this number, 409, or 75.3 per cent, were deaths of premature infants.

‡ Only massive hemorrhage included.

Table 6 gives the fetal and neonatal mortality figures for 2,015 deliveries in which paraldehyde was used. It will be noted that the neonatal death rate is low, as is the stillborn figure. It must be remembered, however, that these patients come from the upper class white population and that facilities for the care of newborn and premature infants are good. These figures are in striking contrast to those presented from the Negro population, where the over-all neonatal mortality figure was above 3 per cent, almost four times as great as in the Emory University group. This high figure pertains even though the Negro mother receives no analgesic or anesthesia.

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[5] Graber, E. A.: Simple, Inexpensive Resuscitation Apparatus for the Newborn Infant, Am. J. Obst. & Gynec. **51**: 729 (May) 1946.

[6] Henderson, Y.: Resuscitation with Carbon Dioxide, Science **83**: 399 (May 1) 1936.

Table 3.—*Neonatal Deaths Diagnosed Clinically and by Autopsy in 17,421 Negro Infants Weighing 1,000 Gm. or More**

| | Premature | Term | Total | Primary Cause of Death | Percentage of Deaths |
|---|---|---|---|---|---|
| Prematurity (primary) | 132 | ... | 132 | .. | 24.5 |
| Intracranial injury | 117 | 78 | 195 | 195 | 36.1 |
| Asphyxia and atelectasis | 106 | 37 | 143 | 88 | 16.3 |
| Congenital anomalies | 22 | 20 | 42 | 34 | 6.30 |
| Diarrhea | 29 | 3 | 32 | 25 | 1.6 |
| Infections (other than syphilis) | 22 | 9 | 31 | 21 | 4.5 |
| Syphilis | 20 | 5 | 25 | 19 | 3.52 |
| Hemorrhagic disease of the newborn | 1 | 2 | 3 | 3 | 0.6 |
| Other diseases | 11 | 10 | 21 | 19 | 3.6 |
| Total (corrected for multiple diagnosis) | 409 | 130 | 539 | 539 | 100.0 |

* Over-all death rate in 17,421 live births, 3.09 per cent; number of premature births, 2,109; percentage of live births, 12.1 per cent. Death rate among all premature infants, 19.38 per cent.

Table 4.—*Flagg's Classification of Asphasia*

| Stage | Characteristics |
|---|---|
| Depression | Baby does not breathe well<br>Baby is capable of being aroused<br>Respiratory center, circulation, muscle tone, reflexes are all depressed from anoxia, but are easily stimulated to normal activity |
| Spasticity | Irregular, gasping, shallow respiration, occurring at long intervals<br>Marked cyanosis of mucous membrane with blotching of skin or general pallor<br>Baby's gums close on the gloved finger tip<br>Reflex reaction to aspiration of the pharynx and an active glottic reflex<br>Froth or fluid in mouth and pharynx |
| Flaccidity | Respiration at long intervals or not at all<br>Cyanosis or pallor<br>Complete flaccidity of musculature<br>Jaw completely relaxed<br>No resistance to suction or exposure of the pharynx<br>Fluid in hypopharynx<br>All reflexes in abeyance<br>Cardiac impulse may or may not be present |

It appears from this study that the use of paraldehyde does not increase infant mortality, although most observers agree that the onset of respiration may be slightly delayed and the infant may be sluggish for several hours.

It is interesting to note that the Emory University group feel that endotracheal catheterization is unnecessary. They depend almost entirely on mouth to mouth resuscitation.

### INTRACRANIAL INJURY

Intracranial injury proved the chief cause of death in our series at Emory University. As is shown in table 3, 117 premature and 78 term infants in this series died of intracranial damage—a total of 195 infants, or 36.1 per cent of the deaths. These figures pertain in a clinic in which a minimum of sedation is administered to the mother and in which operative procedure is rare; they are undoubtedly influenced by the high incidence of prematurity in the Negro race.

A reduction in neonatal mortality due to intracranial damage is primarily due to improved obstetric care. The treatment of the condition is chiefly supportive and the maintenance of adequate oxygen supply, since one of the chief causes of atelectasis is intracranial damage. In our series, of 143 pulmonary deaths due to asphyxia and atelectasis 55 showed evidence of intracranial injury; almost certainly this figure would have been higher if the percentage of autopsies had been greater.

Although vitamin K is administered routinely to premature infants, infants with respiratory difficulty and those suspected of intracranial injury, I am skeptical of its value. Hemorrhagic disease of newborn infants is rare. It was encountered only three times in our series of 17,421 Negro infants.

Spinal drainage as a therapeutic measure in intracranial hemorrhage is rarely indicated. Occasionally I have felt it of value in infants experiencing respiratory difficulty and rarely in those exhibiting convulsions. A diagnostic lumbar puncture is always indicated and, when done skilfully with a needle of proper size, does not increase intracranial hemorrhage.

The infant suffering with intracranial injury should be handled as little as possible. Our fault is one of too much rather than too little therapy—a statement which applies to many of the diseases observed during the neonatal period. Oxygen, heat, quiet and fluids, in the order named, are the chief therapeutic points to be kept in mind during the first critical seventy-two hours of life. Oral administration of fluid should be withheld until the sucking and swallowing reflexes are well established. Parenteral administration of fluid is to be avoided, if possible, because of the pain, crying and resulting engorgement of intracranial vessels. Nursing at the breast is contraindicated until the crisis is over and all danger of further hemorrhage is passed.

Table 5.—*Methods of Resuscitation (Little and Tovell and Flagg)*

I. Establishment and maintenance of the airway
   Gentle aspiration of nares, mouth and pharynx, and when needed, of the trachea and upper bronchial tree
   Aspiration of supraglottic tract before clamping the cord
   Position of fetus, 30 degree Trendelenburg
   Stage of flaccidity with collapsed glottic structures and absent reflex demand endotracheal catheter
II. Use of external stimulation
   Gentleness is stressed
III. Oxygen universally used
   Method of administration varied
IV. Carbon dioxide—controversial
V. Artificial respiration
   Mouth to mouth resuscitation
   Endotracheal catheter for suction and administration of oxygen
   Resuscitators of various types
VI. Maintenance of warmth
VII. Drugs

Table 6.—*Fetal and Neonatal Mortality in 2,015 Deliveries in Which Paraldehyde Was Used as Amnesic (Emory University Hospital, Atlanta, Ga.)*

| | Term | Premature | Total | Percentage |
|---|---|---|---|---|
| Neonatal deaths | 7 | 9 | 16 | 0.79 |
| Stillborn | 8 | 15 | 23 | 1.14 |
| Total wastage | 15 | 24 | 39 | 1.93 |

### CONGENITAL ANOMALIES

Table 7 shows the incidence of congenital anomalies which were encountered in our series. Anomalies of the heart, nervous system and gastrointestinal tract accounted for the major number of deaths. It is of interest to note the rarity of most of the important anomalies in the Negro race, especially true of the gastrointestinal tract, the genitourinary tract and the nervous system. Harelip and cleft palate occurred only eight times, or 1 in every 2,176 infants.

The early diagnosis and prompt surgical treatment of obstructive lesions of the gastrointestinal tract may prove life saving and certainly must be included among the emergencies of the neonatal period.

Vomiting is the obvious symptom. A careful study of its character may reveal much in regard to the location of the obstruction. The salient features in the clinical diagnosis of these conditions are outlined.

### TYPE OF VOMITING

1. Esophageal vomiting is of the immediate overflow type with continuous drooling of saliva and accompanied with respiratory difficulty.
2. Pyloric and duodenal vomiting is of the explosive type, showing action of the gastric musculature.
3. *Vomiting from small or large gut obstruction may be* explosive in nature, but is delayed in onset and preceded by distention from the point of atresia.

TABLE 7.—*Congenital Anomalies Encountered in 17,421 Negro Newborn Infants*

| | Number | Incidence | No. of Deaths |
|---|---|---|---|
| Congenital heart disease | 34 | 1: 512 | 20 |
| Anomalies of the gastrointestinal tract | 15 | 1:1161 | 6 |
| Anomalies of the genitourinary tract | 17 | 1:1024 | 2 |
| Anomalies of the nervous system | 22 | 1: 790 | .. |
| Meningocele encephalocele | 4 | 1:4355 | .. |
| Acephaly and microcephaly | 10 | 1:1742 | .. |
| Spina bifida | 6 | 1:2903 | .. |
| Mongolism | 1 | 1:17421 | .. |
| Amyotonia | 1 | 1:17421 | 10 |
| Hare lip and cleft palate | 8 | 1:2176 | 1 |
| Anomalies of the upper extremities | 186 | 1: 94 | 1 |
| Polydachtylism | 175 | | |
| Anomalies of the arm end hand | 11 | | |
| Anomalies of the lower extremities | 28 | | |
| Monsters | 3 | 1:5807 | 2 |
| Albinism | 1 | 1:17421 | .. |
| Total deaths | | | 42 |

### CHARACTER OF THE VOMITUS

1. The esophageal type contains mucus, sticky detritus and saliva, with immediate return of whatever fluid has been swallowed.
2. Pyloric or duodenal vomitus from above the ampulla consists of gastric contents, which are colorless, contain mucus and occasionally may be blood streaked.
3. Duodenal vomitus from below the ampulla may be greenish brown or often dark chocolate-like in appearance.
4. Vomitus from the small or large gut contains fecal or meconium-like material.

### STOOLS

Atresias above the ampulla yield normal meconium.

Atresias below the ampulla and duodenum yield stools which are grayish or white and mucoid in nature.

The result of Farber's test for squamous epithelial cells, swallowed with the amniotic fluid, is negative.

### GAS PATTERN AS INDICATED BY ROENTGENOLOGIC STUDY

Serial studies of the gas pattern in the gastrointestinal tract of the normal newborn infant indicate that the gas has reached the sigmoid and rectum by the seventh to the tenth hour.

Atresia of the esophagus usually gives a normal pattern, since there is generally a fistula between the pulmonary tract and esophagus. Opaque substance may reach the stomach and intestines by way of the lungs.

Obstructions in the duodenum and high portion of the jejunum are characteristic, showing a complete absence of gas below the distended point of obstruction. Malrotation and volvulus may simulate this pattern. Lesions lower down show evidence of obstruction, but exact location is not obvious.

In suspected esophageal lesions an attempt should be made to pass a soft catheter into the stomach. Obstruction can be immediately recognized, and further studies with an opaque substance in the upper segment of the esophagus are, as a rule, unnecessary and, indeed, are decried by some surgeons. However, the presence of a fistulous tract connecting the upper segment of the esophagus with the pulmonary tree might be overlooked without the procedure. Only iodized oil or some similar substance should be used—never a barium preparation. The latter invariably will overflow into the lung and produce pneumonia or exaggerate already existing pneumonia.

Immediate operation is indicated once the diagnosis is made. Waiting for the pneumonia of esophageal atresia to clear is a vain hope—the condition grows progressively worse.

Parenteral alimentation is an extremely important and delicate procedure. It must be done with meticulous care, *especially in the esophageal atresias.* Overhydration and excessive administration of sodium chloride may produce pulmonary edema and thus add to the infant's already difficult oxygenation. Standards for such procedures are inadequate. Most figures given for parenteral alimentation in premature and newborn infants are too high. I feel that 100 to 120 cc. per kilogram of weight in the first few days of life are adequate, including 50 to 80 cc. of isotonic sodium chloride solution each day, the remainder of fluid to be supplied in 5 per cent dextrose in water and 5 per cent amigen[8] in dextrose solution. These fluids may be administered by drip intravenously or subcutaneously. Blood and plasma are to be substituted for other fluids when indicated.

### INFECTION

Infections in our series produced relatively few deaths. Pneumonia accounted for 20 deaths, sepsis 5, meningitis 4 and peritonitis 2—a total of 31. Seven of the infants had complicating intracranial hemorrhage, making the primary cause of death obscure.

The premature and newborn infant tolerate both the sulfonamide drugs and penicillin well. The dosage of penicillin per kilogram of body weight is not definitely established. Buchanan[7] found blood levels which he believed adequate in infancy by the administration of 4,000 units per pound each twenty-four hours on a three hour schedule. It is our practice to use relatively larger doses in this age group than in later infancy and childhood, depending, of course, on the severity and type of infection. Penicillin in doses of 10,000 to 20,000 units per kilogram of body weight each twenty-four hours and sulfadiazine, 0.15 to 0.2 Gm. per kilogram of body weight each twenty-four hours, are used. In addition to chemotherapy it is essential that adequate hydration be maintained. This is especially true if the sulfonamide drugs are being given. Parenterally administered fluids are usually required, since the infants are desperately ill and take fluids by mouth poorly. Blood transfusions may prove a life-saving measure. The colon bacillus, Staphylococcus aureus hemolyticus and Streptococcus hemolyticus are particularly virulent in this age group.

Infection originating in the umbilicus extending to the liver through the umbilical vein and finally into the general circulation produces a strikingly dramatic picture. The infant may appear to progress fairly well for two or three weeks, except for a slight discharge from the navel. Occasionally this secretion has a foul odor. Then suddenly there is evidence of a profound systemic infection. Fever, cyanosis and shock rapidly appear and death has occurred within twenty-four hours of the onset of acute symptoms. Penicillin in doses of 25,000 to 50,000 units per kilogram of body weight each day may be given with no untoward effect. In case of recovery, the infant may subsequently show evidence of portal obstruction.

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[7] Buchanan, J. L.: Penicillin in Infancy and Childhood, Lancet *2:* 561 (Oct. 19) 1946.

Epidemic diarrhea is probably the most dreaded of infections of the neonatal period. Its cause is still unknown, though a virus is suspected. No specific therapy is available, and the mortality rate remains high. From New York it is reported[8] that of 1,233 infants who contracted the disease 540 died—a mortality rate of 43.6 per cent.

Prevention of the disease by means of rigid cleanliness in the nursery, aseptic nursing technic (as nearly as this is possible) and conscientious scrubbing of the hands promises the greatest protection to these infants. Immediate quarantine of a suspected subject, isolation of exposed infants and no further admissions to the infected nursery are essential measures.

Once the disease has developed the treatment is purely symptomatic: withdrawal of food by mouth, parenteral alimentation which must restore water and electrolytes, correction of acidosis and the administration of dextrose and amino acids. Anemia and hypoproteinemia must be relieved by means of blood and plasma given intravenously. Adequate amounts of vitamin C and B should be supplied hypodermically.

### BLOOD LOSS

The treatment of hemorrhage or loss of blood from any of the various pathologic conditions, such as hemolytic anemia, thrombopenia, hypoprothrombenemia, aplasia and infection, is essentially replacement of this loss by blood transfusion. However, the basic causative factors in these diseases are different and require careful study and differentiation.

The brilliant research in recent years which has established the importance of Rh incompatability in the production of erythroblastosis is too well known to require a review here. My personal experience with this condition has been too limited to add anything of value to the already voluminous and at times confusing literature. It is universally accepted that the infants should receive Rh-negative blood either in the form of multiple transfusions or in massive replacement. Until the indications for this latter procedure are more clearly defined and the technic perfected, it should be attempted only with the greatest caution.

Vitamin K is administered in practically all cases of bleeding encountered during the neonatal period. It is a safe and certainly a harmless procedure, but its value is doubtful. Instances of true hemorrhagic disease of newborn infants are rare, and for them this therapy is specific. However, blood is equally important, and, if there has been considerable hemorrhage which commonly occurs from the gastrointestinal tract, blood should be administered intravenously in amounts adequate to restore the loss.

Congenital thrombopenia may present an emergency in the form of massive hemorrhage from the bowel or extensive subcutaneous hemorrhage. Repeated transfusions over a period of months is sometimes required before recovery is complete.

Congenital hemolytic anemia, though rarely discovered during the neonatal period, may produce profound anemia in the first few weeks of life. Recently I observed an infant requiring splenectomy at 8 weeks of age. Several transfusions were required before operation was attempted.

### ADRENOCORTICAL APLASIA

A rare condition may be observed during the neonatal period; it is characterized by cyanosis, vomiting, evidence of intestinal obstruction, diarrhea alternating with constipation, intractable dehydration, shock, collapse and death.

I have observed 3 male infants in one family exhibiting these symptoms, and in at least 1 the autopsy seems to have clearly proved the diagnosis. These infants were all rather large, exhibited cyanosis at birth or shortly after and began vomiting severely at about 3 weeks of age. They failed to gain from the start and were weaned at 3 to 5 weeks. Pyloric stenosis was suspected in each, and in 1 surgery was resorted to but no definite disease was found. Inability to maintain hydration was striking and suggested the probable diagnosis. Although studies of the chemical content of the blood failed to prove unequivocally the diagnosis of adrenocortical hypofunction, they were suggestive, and 1 infant was kept alive and in good nutrition for seven months by the administration of adrenal cortical extract hypodermically and the addition of large amounts of sodium chloride to the dietary. Attempts were made to reduce the dose of the hormone, but the condition promptly became worse and, although treatment with the original amount of cortin was resumed, the child suddenly went into collapse and died. The autopsy showed decided hypoplasia of the adrenal cortex. A detailed report of these cases will be published at a later date.

### COMMENT

It is obvious that many of the emergencies encountered during the neonatal period may be prevented by improved obstetric care and by closer cooperation between obstetrician, pediatrician and anesthesiologist. For the pediatrician, gentleness and restraint should be exercised in the care of these patients. Overenthusiastic therapy, especially in infants suffering with asphyxia and intracranial injury, should be avoided. The greatest caution must be exercised in all parenteral administration of fluids. The prevention of infection in the nursery by rigid enforcement of all measures which are known to be of value, and the chief of these is the liberal use of soap and water. The early detection and immediate adequate treatment of infection may save the lives of many of these infants.

## ABSTRACT OF DISCUSSION

Dr. Fred L. Adair, Chesterton, Ind.: The more thorough the antenatal care and the more meticulous the attention given during the intranatal period and the immediate postnatal phase the fewer are the emergencies that will arise during neonatal and later infant life. Dr. Roberts stressed the importance of accuracy and gentleness in the neonatal management of infants and pointed out the dangers of indiscriminate and too vigorous therapy. To these ideas, which I heartily endorse, I should like to add the importance of preparedness and promptness in initiating the indicated procedures. There is considerable disability and death of potentially normal fetuses and infants.

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[8] Frant, S., and Abramson, H.: Epidemic Diarrhea of the Newborn in Brennemann, J.: Practice of Pediatrics, Hagerstown, Md., W. F. Prior Company, Inc., 1945, vol. 1, chap. 28, p. 19.

The major problem is the prevention of these disabilities and deaths. This does not mean, however, that one should ignore the problems arising from developmentally and hereditarily handicapped fetuses and infants. Two factors relative to intrauterine life have an important bearing on the immediate establishment of normal extrauterine life. The first relates to respiration. Dr. Franklin F. Snyder has shown that respiration occurs in the intrauterine fluid medium and that as long as this fluid contains no irritating or inflammatory factors no damage results. It has also been demonstrated that the uterine cavity does not remain sterile during labor and that the amniotic sac acts as a barrier to bacterial invasion of the amniotic fluid. The conclusion is that the artificial rupture of the amniotic sac is not warranted except for strict therapeutic indications related to the proper management of labor largely in the interest of the mother. The second point has to do with the decided environmental changes which occur at the moment of birth with a drop in temperature of about 20 F. or more, evaporation and radiation in an atmospheric medium. There is also the rather abrupt circulatory change, the establishment of atmospheric respiration and the sudden release of pressure from uterine contractions and the structures surrounding the birth canal. These rapid and radical adjustments constitute serious handicaps for premature, traumatized and anoxemic infants. These especially must be ushered into the world with gentleness, warmth and a favorable respiratory environment. The respiratory passages must be cleared immediately. I have usually practiced prompt inversion of the infant, so that fluids may gravitate away from the larynx and are kept away until free respiration is established. A soft rubber ear syringe may be used to suck and blow secretions from the mouth and nares. The tracheal catheter is a valuable adjunct in special cases. The quicker oxygen is delivered to the lungs the better.

Dr. Nina A. Anderson, Cincinnati: The presentation of Dr. Roberts' paper at a joint session of the Section on Obstetrics and Gynecology and the Section on Pediatrics is appropriate, since some of the emergency conditions of the newborn infant may be prevented by good obstetric care and untoward results for others may be averted by early detection and treatment during the neonatal period. Alert and continuous observation is essential as an initial impression of well-being may be wrong, the infant showing alarming signs in the nursery within a few hours after birth. Active therapeutic measures for the newborn infant should be as physiologic as possible, and a trained team to care for the infant immediately after birth is highly recommended. There are certain dangers attendant to mouth to mouth breathing. The method may be used overzealously in an infant who is in poor condition. There is the possibility of transmitting infection. In the treatment of the severely apneic infant, the intratracheal administration of oxygen is becoming more widely accepted. If a resuscitator is used, it should be of the type which delivers oxygen directly into the posterior part of the pharynx, and it is highly recommended that the machine be hand operated, so that when the infant takes a breath the pressure can be discontinued by the operator and started again if thought necessary. The choice of analgesia and anesthesia for the mother should be determined by its recognized minimal effect on the fetus. Although carbon dioxide is not indicated for the immediate treatment of an apneic infant, it does play a role in improving the character of respirations once oxygen saturation is achieved, and used intermittently it is of benefit particularly to the premature infant. Since the incidence of intracranial hemorrhage is so high in Dr. Roberts' series, I would like to ask whether he found any correlation with the size of the premature infant or with any predisposing factor for the premature labor. It is unfortunate that the misunderstanding of the properties of vitamin K is so widespread. Vitamin K can affect hypoprothrombinemia, but it cannot relieve bleeding due to other blood dyscrasias or to trauma. In the doses usually given it can do no harm, and its use for the prevention of hemorrhagic disease of the newborn is justified. In general, the occurrence of infection in a nursery varies inversely with the goodness of technic, but outbreaks may occur in well ordered surroundings.

Dr. M. Hines Roberts, Atlanta, Ga.: In reply to Dr. Anderson's question regarding the weights of premature infants suffering with intracranial damage, I can only repeat that in the study there were 409 deaths of infants weighing 1,000 to 2,500 Gm. Of this number, 117 showed evidence of intracranial damage. The exact number of premature infants in the various weight groups exhibiting this pathologic condition is not immediately available. Subdural hematoma was diagnosed at autopsy in 3 infants of this group. Interest in erythroblastosis has been so intense in recent years that one is prone to give scant consideration to certain other important diseases of the newborn producing great loss of blood. I should like to point out that congenital thrombopenia may produce profound anemia and even death, because of massive hemorrhage, chiefly from the bowel or under the skin. Repeated blood transfusions over a period of weeks or even months may be required before recovery is complete. Congenital hemolytic icterus may present an emergency in the neonatal period. Recently I encountered 2 cases exhibiting the classic picture of this condition during the first few weeks of life. Anemia was profound. Several transfusions were required before surgical treatment could be attempted. Splenectomy was done in each instance at approximately 8 weeks of age.

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# UNDECYLENIC ACID GIVEN ORALLY IN PSORIASIS AND NEURODERMATITIS

## A Preliminary Report

HENRY HARRIS PERLMAN, M.D.
Philadelphia

Rothman and his co-workers[1] showed that with the onset of puberty in children the sebaceous glands of the scalp start to secrete a sebum which contains, in higher concentrations than before puberty, saturated fatty acids of a low boiling point with selective fungistatic and fungicidal action on Microsporon audouini. I conceived the idea that the oral administration of one of the saturated or unsaturated fatty acids might be therapeutically effective in the treatment of tinea capitis (M. audouini). I have not found in the literature any reference to the oral administration of a pure saturated or unsaturated fatty acid.

In cases of tinea capitis it was decided to start first with undecylenic acid, because it was most easily obtainable. Toxicity tests were done on rabbits, mice and guinea pigs, and the acid was found relatively nontoxic. The acid was put up in capsules and perles (usually 0.5 Gm. each). Four children, aged 8, 9, 11 and 14 years, respectively, were treated with the acid. Doses averaged 1 Gm. given three times daily. The period of treatment lasted several months. Results were encouraging. Under Wood's light there was less intense fluorescence, fewer fluorescent hairs and also an occasional negative culture. However, there was no ultimate cure. The experiment was discontinued, although it was felt that with increased dosage cures might have been effected.

The most positive effect of treatment with undecylenic acid was the profuse desquamation of the scalp, which suggested to me that undecylenic acid might be effective in the treatment of psoriasis, and on April 29, 1948, I gave the undecylenic acid for the first time to a patient with psoriasis (W. C. R., table). The table shows briefly the essential data pertinent to each case and the results obtained.

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Dr. Leonard G. Rowntree reviewed the report.

J. H. Wallace Jr., Ph.D., of The Wallace Research Laboratories, Princeton, N. J., supplied all of the undecylenic acid in perles and capsules which was used in this study.

[1] Rothman, S.; Smiljanic, A.; Shapiro, A. L., and Weitkamp, A. W.: Spontaneous Cure of Tinea Capitis in Puberty, J. Invest. Dermat. 8:81-98 (Feb.) 1947.

Exfoliation of the scalp begins promptly after the chemical is administered, usually within a day or two, and the exfoliation continues for many weeks. After several weeks of profuse peeling of the scalp the coarser scales become thinner and less abundant. Scaling continues for some time even after the acid therapy is discontinued, and, while ultimate clearing of the scalp is not seen for many weeks or perhaps months after the treatment is started, evidence of desquamation of the scalp can be seen long after the lesions of the glabrous skin have disappeared. Simultaneously with the exfoliation of the scalp, the disseminated guttate and larger psoriatic lesions seen on the glabrous skin begin to show evidence of improvement. So far there has not been any ironclad rule which determines the order in which the psoriatic lesions disappear or any definite means of foretelling which type of patient will respond more rapidly. Factors to be reckoned are undoubtedly the duration of the psoriasis, the sites involved and the optimum dose, which is far from realization as yet. In some patients, clinical response was not noticed until after three months, when large plaques of psoriasis began to disintegrate and were soon afterward replaced by normal skin. On the other hand, in the subacute and chronic disseminated lesions scattered more or less generally over the entire body, I have been amazed at the rapid therapeutic response after comparatively few weeks of treatment. This has been even more noticeable since the doses have been increased, beginning with 15 capsules, 0.5 Gm. each, of undecylenic acid daily in divided doses (total 7.5 Gm.) rather than the smaller doses which were first used. Again it has been my observation in those cases involving chronic indurated plaques of many years' duration, that an improvement in those plaques will continue for a time and then slow down and even stop. Later, even though the acid therapy has been discontinued, improvement will continue until complete involution in many cases. An interesting feature observed is that, with the continued use of undecylenic acid before and after the skin has cleared up, new lesions fail to appear and in those few instances in which new lesions have appeared they appear to be short lived, disappearing spontaneously. In other words, it would seem that undecylenic acid serves to inhibit the recurrence of psoriasis in some manner which at the present time is not quite clear. Although sufficient time has not elapsed to justify a positive conclusion, I think that it is highly probable that the recurrence of psoriasis can be prevented, at least in a significant proportion of cases, by a maintenance dose of undecylenic acid.

*Essential Data for Patients Treated*

| Patient | Sex | Marital Status | Age | Type of Psoriasis | Duration | Date Treatment Begun | Total Days Treatment | Total Dosage, Gm. | Time First Evidence Disappearance of Lesions | Time Complete Disappearance of Lesions | Days Disappearance of Itching | Date Treatment Discontinued | Recurrence |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Complete Disappearance of Lesions | | | | | | | | |
| W. C. R. | M | S | 45 | Chronic generalized | 4 yr. | 5/ 3/48 | 71 | 117 | 2½ wk. | 52 days | 38 | 8/ 5/48 | No |
| S. E. | M | M | 23 | Chronic generalized | 6 yr. | 12/ 6/48 | 24 | 88 | 1 wk. | 2 wk. | 5 | 12/30/48 | No |
| G. C. | M | M | 29 | Chronic generalized | 17 yr. | 7/ 1/48 | 168 | 966 | 2 wk. | 168 days | 1 | 12/16/48 | No |
| | | | | | 75% Disappearance of Lesions | | | | | | | | |
| J. W. | F | M | 23 | Chronic generalized | 18 yr. | 11/25/48 | 37 | 332 | 1 wk. | ........ | N* | ........ | ... |
| L. R. | F | M | 35 | Chronic localized | 10 yr. | 6/24/48 | 154 | 180 | 4 days | ........ | 22 | ........ | ... |
| J. B. | M | M | 39 | Chronic generalized | 8 yr. | 9/16/48 | 99 | 618 | 1 wk. | ........ | 65 | ........ | ... |
| C. F.† | F | M | 45 | Chronic generalized | 8 yr. | 12/ 2/48 | 29 | 136 | 3 days | ........ | 14 | ........ | ... |
| L. H.† | M | M | 41 | Chronic generalized | 13 yr. | 12/10/48 | 21 | 192 | 7 days | ........ | N* | ........ | ... |
| P. D.† | M | M | 37 | Chronic generalized | 27 yr. | 12/ 5/48 | 26 | 138 | 7 days | ........ | 14 | ........ | ... |
| | | | | | 50% Disappearance of Lesions | | | | | | | | |
| D. W. | F | S | 12½ | Chronic generalized | 5½ yr. | 7/ 1/48 | 182 | 455 | 3 wk. | ........ | N* | ........ | ... |
| J. S. | M | M | 33 | Chronic localized | 25 yr. | 6/12/48 | 191 | 473 | 5 days | ........ | N* | ........ | ... |
| A. C. | F | W | 62 | Chronic scaly | 2 yr. | 7/12/48 | 140 | 420 | 2 wk. | ........ | V‡ | ........ | ... |
| A. C. | F | W | 62 | Chronic scalp | 2 yr. | 7/12/48 | | | | | | | |
| L. S. | M | M | 48 | Chronic localized | 24 yr. | 6/13/48 | 147 | 1,205 | 3 wk. | ........ | 14 | ........ | ... |
| F. D. | F | S | 20 | Subacute | 60 days | 10/21/48 | 67 | 346 | 1 wk. | ........ | N* | ........ | ... |
| I. C. | F | M | 40 | Chronic generalized | 8 yr. | 12/13/48 | 18 | 135 | 3 days | ........ | 3 | ........ | ... |
| M. F. | F | M | 31 | Chronic generalized | 5 yr. | 8/14/48 | 138 | 661 | 2 wk. | ........ | 2 | ........ | ... |
| K. W. | F | M | 48 | Chronic generalized | 12 yr. | 12/23/48 | 8 | 40 | 7 days | ........ | N* | ........ | ... |

* No itching was present. † Cases reported in detail in paper. ‡ Itching variable.

It is felt that the chronic indurated localized plaques, such as those which appear on the elbows and over the knees, respond less rapidly to treatment than do the disseminated lesions on other parts of the body. In fact, in lesions of this type of psoriasis it appears that undecylenic acid is a slow-acting drug.

One of the earliest symptoms to disappear in treated patients is itching. Relief of itching is sometimes noticed as early as two days after institution of treatment with undecylenic acid. On the other hand, in some instances itching is worse after the start of treatment and may be rather annoying. However, this symptom disappears after treatment is continued and may then be complained of only intermittently until ultimate disappearance of the psoriatic lesions.

At present it seems that the greatest benefit from undecylenic acid in the treatment of psoriasis is in the subacute and chronic lesions which are more or less generalized on the body. In psoriasis of this type of only a few years' duration, remarkable improvement has been noticed even after as short a period as two to three weeks. Exfoliation of the lesions is preceded by a drying of the scales, which at times become friable and break off, leaving a somewhat reddened skin without bleeding points. All of the lesions become paler and less heaped up. Patients complain of a tightening of the skin, which they describe as feeling stretched and taut. Disintegration of the psoriatic lesion occurs either from within outward or from without inward. Peeling which occurs from outside inwardly is often preceded by an areola of redness. At times circinate definitely circumscribed hyperkeratotic plaques clear in the center, leaving a circinate elevated border which surrounds the clear or slightly erythematous skin in the center, not infrequently resembling lesions of ringworm on the glabrous skin. Finally, the slightly elevated border disintegrates and the thin tissue paper-like scale falls off, leaving normal skin. Frequently at the site of scales of prior lesions hyperpigmented skin is left. However, when the skin has been tanned by the summer sun, the skin at the site of the scale seems by contrast to be depigmented. In a short time the sites of the previous scales cannot be distinguished from normal skin.

Frequently improvement in the nails is seen to occur when they are the seat of psoriatic involvement. The heaped up hyperkeratotic material becomes loosened from the distal portion of the nail and disintegrates beneath the nail. The yellowish discoloration of the nail itself becomes transformed into normal pink after comparatively short periods, a few weeks or a month.

## DOSAGE, METHOD OF ADMINISTERING UNDECYLENIC ACID, UNTOWARD EFFECTS AND REACTIONS

An optimum dose has not yet been determined. In the first series of cases doses were comparatively small, but it was noted that with increased dosage better results were obtained. In subsequent patients dosage was increased rapidly. The initial dose for most adults is now 5 perles, each containing 5 Gm. of undecylenic acid, given three times daily after or before meals or in divided doses, with a daily total of 7.5 Gm. This dose is gradually increased to 10 to 15 Gm. daily in divided doses. The effective dose for the average adult patient seems to be 15 or 20 perles (10 Gm.), given three times daily for many weeks, without any harmful effect and without any disturbance of the gastrointestinal tract.

Among the symptoms produced by the ingestion of undecylenic acid are nausea, vomiting, a burning sensation referred to the epigastrium, frequent bowel movements and diarrhea. Many patients complain of a bitter taste in the mouth similar to the taste of gall or a "rotten herring" and which occurs within a few minutes to several hours after ingestion. Another distressing symptom is belching, with a residual taste in the mouth of rancid oil (butyric acid). Probably much of the stomach distress and nausea could be eliminated by the use of enteric coated perles. They are not yet obtainable. The stomach distress and nausea can be prevented and relieved with carbonated waters, soft drinks or ½ teaspoonful of sodium bicarbonate in water, with the perles or a short time after the perles are taken. On occasions when vomiting occurred, the medication was stopped. With resumption of medication the vomiting did not recur. Diarrhea, while it occurred in some of the patients, was of short duration and ceased of its own accord even though medication was not interrupted.

Other symptoms which apparently could be attributed to the ingestion of the drug are folliculitis, localized minute abscesses on the posterior part of the neck, headache, conjunctivitis and axillary adenitis. All these symptoms promptly disappeared with temporary discontinuance of treatment and did not recur when it was resumed. A few patients complained of frequent urination experienced soon after ingestion of the drug. This symptom abated after a few days in 1 patient; in another it persisted for a while. Routine observation of blood pressure, respiratory and heart action, pulse rate and temperature and urinalysis failed to indicate any abnormalities.

I wish to caution against the general use of undecylenic acid until thorough scientific research has been completed. Frequent urinalysis and complete blood cell counts should be done while the drug is being administered, and the physician should be continually alert for any untoward reaction.

## NEURODERMATITIS

Undecylenic acid has been tried in a small number of patients with neurodermatitis, in order to determine the effect of this unsaturated fatty acid on the pruritus complained of and to find out whether the chemical had any therapeutic effect on the lichenified indurated plaques common to this dermatosis. From the small number of patients studied to date, it appears that undecylenic acid has a definite effect on the lesions of neurodermatitis.

## REPORT OF CASES

CASE 1.—Mrs. F. E., aged 37 years, a housewife, was first seen April 13, 1948, because of severe unbearable itching of both upper eyelids of four years' duration. Various topical medicaments and ultraviolet rays had been given by dermatologists but had been ineffective. Erythematous indurated lesions were then on the eyelids, with a thickened leathery feel and scaling; the lesions were more definitely pronounced on both upper lids than on lower lids. Results of various patch tests (including with finger nail polish) were negative as were those of all other laboratory tests. No lesions were present on other parts of the body. Various therapeutic measures were ineffective. On June 13 undecylenic acid in capsules (0.5 Gm.) was given three times a day, and the dose was gradually increased to 1.5 Gm. three times a day by the end of the first week. After a month perles containing the same amount (0.5 Gm.) were used, 2 perles three times daily (total 3 Gm. daily). Itching improved on the second day and had disappeared by the fourth day. Increased peeling of both upper lids commenced on the second day and reached a maximum at the end of the week with coarse scaling, after which time desquamation continued irregularly but with a fine scale. The eyelids appeared and felt softer and velvety, having lost their thick leathery indurated feel. As the patient put it, they felt "lubricated" instead of "tight and heavy." Although erythema and scaliness still continued, there was definitely less than when the patient was first seen. Treatment was continued with regularity (1 Gm. three times daily) with progressive improvement and complete absence of itching until July 25. Treatment with perles was then stopped to determine the effect of discontinuance of therapy. Almost immediately there was a return of itching, milder, however, than the original itching, and both eyelids became erythematous and scaly. The patient insisted that she again be given the perles of undecylenic acid, which were given one week after stoppage, in doses of 1 Gm. three times daily. Itching and erythema promptly subsided, and scaliness diminished. On October 18 the dose was increased to 2.5 Gm. (three times daily), with excellent effect on the residual erythema and scaliness. Because of a developing hyperpigmentation of the upper and lower lids treatment with the perles was discontinued on December 12. There was a return of slight itching and erythema. The hyperpigmentation surrounding the lids has largely faded and the lids did not become thick and indurated. They remained smooth and velvety to the touch. There were no untoward symptoms except a softer stool at the start of the medication.

Case 2.—Mrs. M. B., aged 66, a housewife, was seen on Aug. 30, 1948, with severe itching in the vagina, on the chin and in both antecubital areas. There were several erythematous papular plaques in both antecubital areas, of two years' duration. The patient was very nervous. One perle, containing 0.5 Gm. of undecylenic acid, was given three times daily, with immediate improvement the following day. Medication was continued for one week. There was a recurrence on November 18. Treatment with perles in the same dosage was repeated. There was complete disappearance of the rash and itching after two days. Medication was discontinued, without recurrence.

Case 3.—Mr. S. R., a tailor, aged 53 and married, was first seen July 18, 1948, complaining of itching and rash of twelve years' duration, which had been practically continuous. Examination revealed the typical lichenified indurated erythematous papule-like lesions common to neurodermatitis. Areas involved were the inner aspects of both thighs, entire scrotal area, sacral area, anal cleft, both buttocks and posterior area of the neck. Various forms of topical therapy and roentgen therapy had been used, with only temporary improvement. Undecylenic acid, 0.5 Gm. three times a day, was prescribed. One week later itching was still present, but lesions seemed paler. Treatment continued. Three weeks later there was a decided lessening of the itching. Six weeks later the itching was minimal and the patient stated that he felt better than at any time in the previous twelve years. On November 14 the dose was increased to 2 Gm. (three times daily). On December 20 itching was slight and the lesions decidedly improved.

Case 4.—Mrs. W. B., aged 30, a housewife, was first seen Nov. 18, 1948, complaining of severe itching in the lumbar region. Examination revealed erythematous papular lichenified well demarcated plaques in the lumbar region and abdomen, of eight to nine years' duration. Undecylenic acid was prescribed, 0.5 Gm. three times daily. One week later all lesions had disappeared from the abdomen and lumbar region and there was no itching. The following week several new patches of neurodermatitis were noticed on the lateral aspects of the thighs and smaller similar lesions in the intrascapular area. The dose was increased to 1.5 Gm. three times daily and treatment continued for three weeks. At that time the lesions had completely disappeared and there was no itching.

Case 5.—Mrs. F. D., aged 27, a housewife, was first seen on Nov. 27, 1948, for a rash on the anterior and lateral aspects of the neck of five months' duration. She had received topical therapy from a number of other physicians without improvement. Examination disclosed typical erythematous lichenified papules on the lateral and anterior aspects of the neck, on both upper eyelids and behind each ear. The eyelids showed scaliness, and there was a reddened area on the left lower eyelid. Itching was severe. The patient was extremely nervous and stated that she worried a great deal. Diagnosis of lichen simplex chronicus (Vidal) was made, and undecylenic acid, 2.5 Gm. three times daily, was prescribed. The first four days the patient took only 0.5 Gm. three times a day by mistake. The fifth day the patient began taking the prescribed dose, 2.5 Gm. three times daily. One week later the rash was scarcely noticeable and the itching had completely disappeared. When she was last seen December 23, there was only slight residual erythema and no itching.

Case 6.—Mrs. I. L., aged 60, a housewife, was first seen Nov. 15, 1948, complaining of severe itching of the external genitalia, the vaginal mucosa and the inner aspects of both thighs of several years' duration. Examination revealed erythematous plaques on the external genitalia, with lichenified patches on both buttocks and the sacral region. Crural areas of both thighs was also definitely lichenified and erythematous, as was also the lower third of the anterior aspect of the thighs. Undecylenic acid, 1 Gm. three times daily, was prescribed. Two weeks later the erythema was practically gone, the lesions were greatly improved and the itching was minimal; in fact, the patient was able to sleep through the night without scratching. The same dosage was continued.

Case 7.—T. R., a female student aged 17 years, was first seen Oct. 28, 1948. As an infant she had been treated by me for atopic dermatitis. Her father suffered from hay fever. Examination showed a dry scaly eczematized skin on both cheeks and the forehead. Similar lesions were on the anterior region of the neck and behind the ear lobes, and there was lichenification and scaling of the fingers of both hands. The antecubital regions and popliteal areas were the seats of the typical lichenified erythematous plaques commonly seen in atopic dermatitis. There was severe itching. Undecylenic acid, 0.5 Gm. three times a day, was prescribed and a mixture of pine tar ointment and zinc oxide paste in equal amounts was ordered for topical application at bedtime. By November 4 the itching had diminished and there was a noticeable improvement in the scaliness and dryness of the lesions. By November 11 the itching had completely subsided and the lesions, though definitely clinically improved, were still very dry. Undecylenic acid and topical applications were discontinued about November 20. The patient was last seen December 23. All lesions had disappeared with the exception of a circinate area of erythematous scaly plaques on the dorsal surface of the right wrist.

Case 8.—J. D. R., an Italian engineer aged 65, had had asthma for ten years. In 1947 he noticed a rash on the left leg which spread over the entire body. He was treated topically and with antihistaminic drugs by various physicians. He was first seen May 10, 1948. There was a generalized exfoliative dermatitis on the entire body with severe itching and redness. The skin was acutely inflamed with weeping, crusting and exfoliation. Itching at times was unbearable. Undecylenic acid, 1 Gm. three times a day, was prescribed, with topical applications of a mixture of equal parts of olive oil and lime water. Itching was improved after two weeks. The skin showed little improvement after four weeks. On July 19 the skin showed the first evidence of improvement, exfoliation had subsided and normal areas of skin were seen on the forearms and lower extremities as well as on the body. When the patient was last seen, December 27, itching had completely disappeared and the skin was smooth and clear except for a few small circinate eczematized plaques on the upper and lower extremities. The treatment with undecylenic acid perles and topical applications was continued.

## THERAPEUTIC INDICATIONS

Until carefully controlled scientific investigations have been carried out, one can only speculate how undecylenic acid produces its therapeutic effect on the skin in psoriasis, neurodermatitis and the arthropathies. Psoriasis may be due to a metabolic disturbance, but this, too, is purely speculative and cannot be determined until chemical investigation and metabolic studies have been carried out in large numbers of patients.

## SUMMARY

A series of 17 patients with chronic psoriasis, both localized and generalized, were given gradually increased doses of undecylenic acid by mouth for varying periods of time, with definite improvement in the psoriasis characterized by a disappearance of the psoriatic lesions, a permanent relief of the itching complained of and, in several instances, associated with arthropathies, a definite disappearance or improvement in the joint pains. A series of 8 patients with neurodermatitis were treated with undecylenic acid by mouth for varying periods of time, with improvement or disappearance of the lesions and itching.

Definite claims for undecylenic acid cannot be made from the comparatively small number of patients studied at this time. However, undecylenic acid seems to hold a great deal of promise in the improvement and possible prevention of recurrences of psoriasis and neurodermatitis. Time alone will tell the story of this remarkable unsaturated fatty acid in the treatment not only of these diseases but of many unrelated disturbances. This preliminary report is made to spur research, clinical and scientific, on undecylenic and the other unsaturated fatty acids, in all phases.

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# REACTIONS TO PERTUSSIS VACCINE

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The report of Byers and Moll[1] on irreversible reactions following the injection of pertussis vaccine was disturbing, since prior to it this antigen had been considered innocuous. Their observations cover a ten year period and are summarized in table 1.

In case 2, 1 of 2 siblings had epilepsy and an uncle had hydrocephalus; in case 9, 1 of 2 siblings had hydrocephalus, and in case 12, 1 patient had febrile convulsions. No cases appeared between 1940 and 1942; 1 to 4 cases were seen during each of the other years. Twelve patients had received fluid toxoid. Five had reactions after the first, 4 after the second and 6 after the third dose. Two died and 8 had irreversible cerebral damage. The dose for 4 patients was unknown. Six of the remaining 12 had been given from 40 to 45 billion, 3 had 30 billion and 2 had 10 billion bacteria, after which reactions occurred. Recently Dr. Byers informed me of 4 additional cases.

TABLE 1.—*Observations of Byers and Moll on Encephalopathies Following Administration of Pertussis Vaccine*

| Case No. | Age, Mo. | Manufacturer | No. of Bacteria, in Billions/Dose | Dose No. | Results |
|---|---|---|---|---|---|
| 1 | 15 | ? | .. | 3 | Improved |
| 2 | 18 | A | 30 | 2 | *Familial epilepsy; poor* |
| 3 | 12 | B | 40 | 2 | Poor |
| 4 | 7½ | C | 40 | 3 | Apparently better; improved slightly |
| 5 | 18 | E | 40 | 1 | Exposure to whooping cough; improved |
| 6 | 7 | E | 30 | 2 | Poor |
| 7 | 11 | F | 40 | 3 | Poor |
| 8 | 10 | F | 30 | 1 | Died; respiratory infection (Pneumococcus) |
| 9 | 6 | F | 45 | 3 | Died; 1 sibling with hydrocephalus |
| 10 | 9 | ? | 10 | 1 | Poor |
| 11 | 5 | ? | ? | 1 | Poor |
| 12 | 7½ | F | 40 | 3 | Poor |
| 13 | 6 | E or F | ? | 2 | Improved |
| 14 | 6 | G | 10 | 1 | Slight convulsions |
|  |  |  | 10 | 2 | Slight convulsions |
| 15 | 8 | A and B | ? | 3 | Otitis; better (vaccinated simultaneously |

I sent a questionnaire to (1) all the local pediatricians in northern Ohio; (2) all those who had written on the subject of whooping cough, and (3) the members of the profession in general through the pages of *Quarterly Review of Pediatrics* and the *American Journal of Diseases of Children* for specific information on this subject. The data received are summarized in table 2.

I decided to try to obtain an answer to a simple question, "Did the patients have convulsions after vaccination?" There may be a misunderstanding as to what constitutes an encephalopathy, but everyone can recognize a convulsion.

The following physicians were consulted and reported no convulsions after injections: William Sako, New Orleans; John Bigler, Highland Park, Ill.; W. W. Waddell, Charlottesville, Va.; Jean V. Cooke, St. Louis; John R. Wilkey, Seattle; Paul Hamilton, San Marino, Calif.; Louis Sauer, Evanston, Ill.; V. K. Volk, Saginaw, Mich.; H. J. Parish, Beckenham, Kent, England; Leila Daughtry-Denmark, Atlanta, Ga.; Herman Gold, Chester, Pa., and J. W. Epstein, Fred Rittinger, Henry F. Saunders, Otto L. Goehle, Chauncey Wyckoff, Isadore Silber, Clarence Weidenthal, Alexander N. Freed, William M. Champion, Arthur J. Horesh, Oscar B. Markey, Charles F. McKhann, Paul C. Crone, Joyce I. Hartman, R. W. Fullerton, Joseph E. McClelland, Melvin F. Yeip, Walter Heymann, Charles L. Ruggles, Paul G. Albrecht, Robert B. Hauver, Hugh J. Leslie and Warren C. Fargo, Cleveland.

Dr. J. W. Epstein gave injections to more than 7,000 patients; Dr. Chauncey Wyckoff gave injections to more than a thousand children; Dr. Daughtry-Denmark has used vaccine since 1933. None of these physicians has seen convulsions following the inoculation of pertussis vaccine.

There were at least 38 well authenticated cases. Data were given in 25 of these. The facts were incomplete for 1 child, but of the remaining 25, 23 recovered completely, 2 had bad reactions and died, 4 had subsequent convulsions, 4 were simultaneously ill with other diseases and 5 had convulsions previous to injection. This leaves the 12 reported by Buchanan, on which I have only the general statement: "All showed irreversible changes."

I could find no common denominator. In the cases of Byers and Moll, it seemed fluid toxoid was given oftenest. There seems a disproportionate number of cases reported in the East and Midwest. This could easily be explained on the basis of incomplete reporting from other parts of the country.

Of all the patients seen in Cleveland and vicinity, none had irreversible changes.

Faber stated that these reactions may be due to: (1) constitutional reactions occurring in the patients themselves; (2) immediate intravenous injection of vaccine; (3) antigen antibody responses to previous specific sensitization; (4) process of pyrogens in bacterial organisms, and (5) damage of cerebral vessels from toxins in pertussis.

Only 5 patients in this series could have been constitutionally predisposed. One can agree with Faber that intravenous injection may cause reactions. This cause is unlikely, but, as he recommended, it should be taken into consideration.

That reactions were due to antigen antibody response could be rejected, since the children were not previously immunized. Some were children who had been given first injections. The process of immunizing mothers has been so recent that one could ignore this as a possibility.

It is true that this antigen might give pyrogen reactions. Temperatures were high both in the series of Byers and Moll and in that herein reported on. Perhaps the identification of pyrogens might be possible.

Hemophilus pertussis does produce a toxin, and many persons during the course of the disease have had encephalopathies. Whether the reaction may be due to fever or a toxin has to be determined.

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Read before the Section on Pediatrics at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 23, 1948.

[1] Byers, R. K., and Moll, [illegible] Following Prophylactic Pertussis Vaccine, Pe[illegible] 1948.

In many instances, children were given injections of vaccine grown on human blood. This human blood may have been carried into the vaccine, together with many questionable antigenic factors.

I think, with Faber, that the National Institute of Health should test all whooping cough vaccine for pyrogens.

### SUMMARY

1. No child should receive injections of pertussis vaccine in large amounts (40 billion organisms, double strength) who has (*a*) any family history of convulsions, (*b*) a present history of convulsions or (*c*) illnes of any kind, especially if it pertains in any way to the central nervous system.

2. If there is any doubt, the dosage should be decreased.

3. A report should be made of every apparent reaction, and complete data should be kept by the physician.

4. Perhaps the United States Public Health Service should standardize vaccine not only for potency, but for aging.

5. There are not enough reported aftermath reactions to discontinue the use of vaccine.

Table 2.—*Summary of Data Received in Answer to Questionnaire on Incidence of Reaction to Pertussis Vaccine*

| Name of Physician | Cases Counted | Total No. Cases | Manufacturer | Dose No. | Clinical Reactions |
|---|---|---|---|---|---|
| Joseph H. Lapin, New York.......... | 1 | 1 | Sharpe & Dohme, Inc. | ? | Convulsions; better |
| | 2 | 1 | Sharpe & Dohme, Inc. | ? | Convulsions; better |
| John J. Miller Jr., San Francisco.... | 3 | 1 | Cutter Laboratories | 3 | Fever and convulsions; not verified by physician |
| | 4 | 1 | Cutter Laboratories | 1 | Convulsions with fever within 12 hours; better; family history of febrile convulsions |
| J. D. Bailey and A. A. Lampert, Rapid City, S. D. | 5 | 1 | Eli Lilly & Company | 1 | Bad convulsions after 3 hours; encephalitis? improved |
| Cited by Bailey and Lampert (not counted in this series) | | | | | |
| Madsen .............................. | .. | 2 | ....... ............ | .. | Death |
| Doull, Shibley and McClelland...... | .. | 3 | ...................... | .. | Convulsions |
| Taylor .............................. | .. | 1 | ...................... | .. | Tonic contractions |
| Rambar and others................. | .. | 1 | ...................... | .. | Convulsions after each of 2 injections |
| John H. Doval, Sacramento, Calif. (not counted in this series) | .. | 1 | Cutter Laboratories | 3 | Response with no convulsions; history of allergy |
| | .. | 1 | Cutter Laboratories | 2 | Response with no convulsions; history of allergy |
| Janette Munro, Princeton, N. J...... | 6 | 1 | Parke, Davis & Co. (Sauer) | 1 | Petit mal psychomotor seizure; subsequent injection negative; previous seizures to one reported |
| Karl T. Benedict, W. Boyleston, Mass. | 7 | 1 | Parke, Davis & Co. (Sauer), double strength | 2 | Delirium; convulsions; twin brother allergic; recovered |
| | .. | 1 | Parke, Davis & Co. (Sauer), double strength | 2 | Probable convulsion |
| | 8 | 1 | Eli Lilly & Company ("perdipigen") | 1 | History of eczema; convulsion |
| | .. | 2 | ? | .. | Indirect testimony; convulsions, details unknown (not counted in this series) |
| Wilson L. Grubb, Baltimore......... | .. | 1 | Sharpe & Dohme, Inc. | 1 | Stuporous 20 min.; better; no convulsion (not counted in this series) |
| Rudolph Bien ......................... | 9 | 1 | Lederle Laboratories, Inc. | 1 | Convulsion; died |
| George C. Malley, Zanesville, Ohio.. | 10 | 1 | Eli Lilly & Company | 1<br>2 | Convulsions 24 hours and for 1 week; same after 2d injection; treated previously for convulsions; recovered |
| | 11-15 | 5-6 | ? | ? | 5 or 6 children had convulsions, none irreversible; all recovered; 1 appeared to be encephalitis |
| Douglas N. Buchanan, Chicago...... | 15-27 | .. | ? | ? | 12 cases in last few years; some decerebrate rigidity; death |
| N. R. Mackay, Wellington, New Zealand | .. | 3 | ? | ? | Treated with vaccine from Australian Commonwealth Serum Laboratories; symptoms of pertussis; coma; death; not strictly pertinent to this subject (not counted in this series) |
| Donald T. Fraser, Toronto, Canada | 28 | 1 | ? | ? | Convulsions; recovered |
| | .. | 1 | ? | ? | Reaction; URI entire family; not pertinent and not counted in this series. (This physician reports more than 300,000 doses injected.) |
| Pearl Kendrick, Grand Rapids, Mich. | .. | 1 | ? | ? | Convulsions; not verified (not counted in this series) |
| | 29 | 1 | ? | ? | Convulsions; simultaneous throat infection. (This physician reports more than 20,000 injections.) |
| Benjamin Stetin, Washington, D. C. | 30 | 1 | Eli Lilly & Company | Booster | Never ill; convulsions until death |
| Theodore P. Herrick, Cleveland...... | 31 | 1 | Parke, Davis & Co. | 3 | Had otitis media at time; convulsions; recovered |
| | 32 | 1 | Parke, Davis & Co. | ? | Had tonsillitis at time; convulsions; recovered |
| John H. Davis, Cleveland............ | 33 | 1 | ? | ? | Convulsions; previous neurologic reactions and birth injury; better |
| | 34 | 1 | ? | ? | Mild reaction; better |
| Franklin A. Benes, Cleveland......... | 35 | 1 | Parke, Davis & Co. | 2 | Previous and subsequent convulsions; 2 subsequent injections with no trouble; better |
| Clayton T. J. Dodge, East Cleveland, Ohio | 36 | 1 | ? | ? | Convulsions and high fever; pyelocystitis at same time. (This physician reports 2,715 injections with no complications.) |
| Beulah Wells, Cleveland............ | 37 | 1 | ? | ? | Convulsions after each of 2 injections; previous neurologic reactions |
| Wm. H. Gronemeyer, Midland, Mich. | 38 | 1 | E. R. Squibb & Sons (alum-precipitated diphtheria toxoid) | 2 | Convulsions; good condition afterward |

### ABSTRACT OF DISCUSSION

**Dr. Archibald L. Hoyne**, Chicago: Even though the number of fatal or serious reactions reported from injections of pertussis vaccine appears small, Dr. Toomey's paper is of great importance. Attention is focused on unusual possibilities which may result from the immunization of an infant or child against whooping cough; emphasis is also placed on the state of health, and equally important is the past history of illness and any neurologic data pertaining to the parents or other members of the family. As early as 1937, I believe, Madsen referred to 2 deaths in newborn infants following a second injection of pertussis vaccine. Both fatalities were sudden and unexplained. If the initial reaction is severe, it should serve as a danger signal and no additional injections ought to be given. Brody reported in 1947 the case of an infant who was inoculated with pertussis vaccine a month or two after complete recovery from an encephalitic type of infection. After the first dose of vaccine, encephalitis recurred with flaccid paralysis, with complete recovery. With the second injection there was a repetition of the same symptoms, and the condition persisted for months. Later, a small dose of diluted vaccine was administered intradermally and this was followed by death in a few days. I do not believe that the size of the dose is an important factor. Possibly, the untoward results are due to activation by the pertussis vaccine of some virus harbored by the patient. However, convulsions or encephalitis may be occasioned by any acute infectious disease. Therefore, it seems plausible that pertussis toxin in the vaccine could be accountable. But if that were the causative agent most likely a far greater number of bad reactions would be recorded. Sometimes it is recommended that following the administration of vaccine the site of injection should be massaged. The purpose advanced for doing this is to lessen the likelihood of seepage. However, in my opinion, the procedure is not without danger, for it may promote the entry of vaccine into a blood vessel. If the needle enters the skin diagonally, and not perpendicularly, seepage is not apt to occur, provided gentle pressure is applied immediately after the needle is withdrawn. Practically, the constitutional factor is likely to receive special attention, and unfavorable reactions will probably be attributed by many to some phase of anaphylaxis until there is a better understanding of the actual cause. Improved methods of refinement in the production of pertussis vaccine may eventually eliminate the hazards that have been described.

Dr. Louis W. Sauer, Evanston, Ill.: In isolated cases a customary prophylactic dose of pertussis vaccine (usually fluid) seems to elicit a chain of untoward central nervous system reactions—fever, convulsions and, in some instances, irreversible pathologic changes in the brain. These cardinal findings resemble those occasionally encountered in cases of severe whooping cough. During the ten years of their study, Byers and Moll observed that twice as many children were admitted with pertussis encephalopathy as were admitted with symptoms due to pertussis vaccine. This triad, however, has been reported also after successful smallpox vaccination and after prophylactic doses of diphtheria toxoid, typhoid vaccine and Hemophilus influenzae vaccine. In Dr. Toomey's series the pertussis antigens were made by seven commercial laboratories, and in the Byers-Moll group, by at least eight laboratories. Several of the infants had convulsions after two successive doses. In several, the second convulsion-eliciting dose was made by a laboratory other than that which made the first. In neither series did any 2 children show these untoward symptoms after doses taken from the same vial. It is of the utmost importance in the defense of pertussis vaccine that the remainder of the vaccine in these vials when administered to other infants caused neither convulsions nor pathologic changes in the central nervous system. Alum-precipitated pertussis vaccine and multiple antigens were used infrequently; in only one instance was a booster dose involved. Of far greater significance seems to be the similarity in many of the family histories in both the Toomey and the Byers-Moll series—a high incidence of central nervous system instability (close relatives with epilepsy and siblings with histories of convulsions). This constitutional background apparently is an integral component. Because administration of pertussis vaccine has become in recent years the initial immunization procedure, it has become a factor which precipitates high fever, convulsions and encephalopathy in infants with potentially unstable central nervous systems. The trigger effect of any fever-producing antigen may cause the chain of symptoms. Most of us have encountered an occasional child who repeatedly shows convulsions at the onset of such febrile diseases as acute tonsillitis, otitis media and pyelitis. Had prophylactic doses of a high fever-producing antigen been injected into such a child in infancy, might not convulsions have developed? Byers and Moll resorted to pneumoencephalograms. In 1 patient (case 6), one month after the incriminating dose of antigen, at the age of 8 months, they found "enormous dilatation of the ventricular system." The logical question is: Did such an extensive pathologic lesion of the central nervous system antedate the vaccine, or was it the result of the vaccine? I propose that the chair appoint a committee to study the subject of convulsions and encephalopathy following the administration of any type of antigen—a report to be submitted to the Section on Pediatrics at some future annual meeting.

Dr. John A. Toomey: I agree with Dr. Hoyne that the state of health of the individual patient is important. The physician should not give an injection to a child when it has had any illness, especially otitis media. He should not give an injection to any child who has a neurologic reaction or a history of neurologic reactions or, as one of the speakers mentioned, a trigger type brain mechanism. I agree with Dr. Hoyne that there is a possibility that some virus may be activated by injection of an antigen. This is the standard explanation of what happens in encephalitis following vaccination. There may be a great number of patients who have had reactions, but they have not been reported as yet. Of course, as Dr. Hoyne said, if the vaccine is injected into a blood vessel, an immediate reaction may result. As far as influenza vaccine is concerned, I agree with Dr. Sauer. There is no sense in giving children influenza vaccine. It has not been proved effective. I agree with Dr. Sauer that if a child has any central nervous system involvement, one ought to stop, look and listen before doing the vaccination. I do not quite agree with Dr. Sauer on the number of organisms injected. I think 40 billion is more than enough. Dr. Sauer's experience with his vaccine is good. He uses vaccine that has been grown on human blood. This does not imply, however, that blood materials may not be absorbed in the antigen preparation. There may be a reaction in this. Certainly, such a thing can occur in hepatitis.

# Clinical Notes, Suggestions and New Instruments

## AUREOMYCIN THERAPY OF RECRUDESCENT EPIDEMIC TYPHUS (BRILL'S DISEASE)

EMANUEL B. SCHOENBACH, M.D.
Baltimore

The nonepidemic occurrence of typhus among residents of New York City was first reported by Brill in 1898.[1] A singular selection of persons who had been born in Eastern Europe was described. Later investigations conducted by Maxcy in the Southeastern United States of what was believed to be Brill's disease revealed that endemic typhus in this country was caused by a murine strain of Rickettsia transmitted by the rat flea and was not the louse-borne epidemic type.[2] In 1933 and 1934, Zinsser, through careful epidemiologic analysis of data assembled in New York and laboratory studies on cases observed in Boston, postulated that Brill's disease was probably a recrudescence of epidemic louse-borne typhus and not the endemic flea-borne type observed in Southeastern United States[3] The strains isolated by Zinsser from 3 patients behaved like the European type and supported the belief that Brill's disease represented the classic European infection.[4] Subsequent serologic study of serums obtained from patients ill with Brill's disease in Boston and New York with washed rickettsial antigens have confirmed Zinsser's thesis.[5] This type of infection is of epidemiologic importance because if persons suffering from a recrudescence of epidemic typhus harbor lice, they may become infected and thus initiate secondary dissemination.

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From the Department of Preventive Medicine, Johns Hopkins University School of Medicine.

Aureomycin hydrochloride ("duomycin") was supplied by the Lederle Laboratories Division, American Cyanamid Company.

Dr. Milton Sherry and the members of the house staff, especially Dr. Stanley Miller and Dr. Marjorie Oxman, of the Sinai Hospital, Baltimore, cooperated in this study.

[1] Brill, N. E.: An Acute Infectious Disease of Unknown Origin: A Clinical Study of Two Hundred and Twenty-One Cases, Am. J. M. Sc. **139:** 484, 1910.

[2] Maxcy, K. F.: Typhus Fever in the United States, Pub. Health Rep. **44:** 1735, 1929.

[3] Zinsser, H.: Varieties of Typhus Virus and the Epidemiology of the American Form of European Typhus Fever (Brill's Disease), Am. J. Hyg. **20:** 513, 1934.

[4] Savoor, S. R., and Velasco, R.: The Survival of Varieties of Typhus Virus in Mouse Passage with Particular Reference to the Virus of Brill's Disease, J. Exper. Med. **60:** 317, 1934.

[5] Plotz, H.: Complement Fixation in Rickettsial Diseases, Science **97:** 20, 1943. Morgan, H. R.; Neva, F. A.; Fahey, R. J., and Finland, M.: Brill's Disease: Report of Two Serologically Proved Cases of Typhus Fever in Irish-Born Residents of Boston, New England J. Med. **238:** 871, 1948.

To the present, no chemotherapeutic agent has been of value in this disease. Aureomycin, an antibiotic derived from Streptomyces aureofaciens, has been shown to possess decided chemotherapeutic activity in experimental infections with murine and epidemic strains of typhus rickettsiae as well as the rickettsiae of Q fever, Rocky Mountain spotted fever and rickettsialpox.[6] Q fever and Rocky Mountain spotted fever, Eastern type, have been treated with this antibiotic with rapid defervescence and clinical improvement.[7]

A patient, in Baltimore, ill with recrudescent epidemic typhus (Brill's disease), was treated with aureomycin. The clinical response observed in this patient paralleled the experience observed with Rocky Mountain spotted fever, and the therapy definitely exerted a beneficial influence on the course of the disease.

### REPORT OF A CASE

A. H. was a 42 year old Rumanian-born white man, who was first admitted to the Sinai Hospital, Baltimore, under the care of Dr. Milton Sherry on July 20, 1948, for the removal of a thyroid adenoma. An operation was performed by Dr. Alfred Ullman on July 21, and a colloid adenoma measuring 5 by 2.8 by 3 cm. was removed. Postoperatively no unusual complications were noted, and the patient was discharged on July 26. He had received penicillin, 50,000 units intramuscularly every three hours preoperatively and postoperatively to avoid infection and "seconal sodium" (sodium 5-ethyl-5-[1-methylbutyl barbiturate]) and methadone for sedation and analgesia.

The patient convalesced at home and improved progressively until five days before his second admission, on Aug. 5, 1948, when he suddenly experienced a shaking chill, severe generalized headache and pain in the calves of both legs. Acetylsalicylic acid was taken, with only slight relief of the headache and transitory reduction of the fever. His symptoms became progressively worse, and on the evening of the fourth day, at which time a maculopapular rash on the abdomen was noted, a physician administered 200,000 units of penicillin G intramuscularly. Later that evening, the rash became more extensive, the temperature rose to 105 F. and the patient was referred to the Sinai Hospital. No cough or chest pain had been experienced during this illness, but there had been decided anorexia with vomiting on one occasion.

The patient was born in Russia and had suffered from "fleck typhus" in 1918 during an epidemic. He had been in the United States and a resident of Baltimore since 1925. He could remember no insect bites preceding his present illness, and no obvious rat infestation had been observed at his home. He was the manager of a large retail self-service market and had not been at work for at least twelve days preceding the onset of his illness.

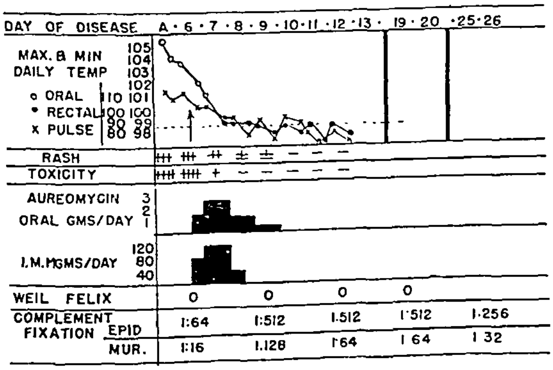

Chart of data in the case reported (Brill's disease in a 42 year old man).

Physical examination on admission showed an extremely ill delirious man complaining of an intense generalized headache. He was lethargic with episodes of anxiety and motor excitement attributed to the headache. The temperature was 105.2 F. (oral); the pulse rate was 112, and respirations were 24 per minute. The blood pressure was 110 mm. systolic and 60 mm. mercury diastolic. The eyes were glazed, and the conjunctivas were congested and diffusely injected with pronounced venous engorgement. A scar over the thyroid area of the neck was well healed, with no evidence of induration. Examination of the heart and lungs revealed no evident abnormality. The abdomen was somewhat distended. The spleen was palpable 2 fingerbreadths below the left costal border. No other visceral abnormalities, masses or hernias were present. On the abdomen, lower part of the chest, back, arms and lower extremities, a salmon-colored discrete maculopapular rash was present. This eruption faded somewhat on pressure. It was not hemorrhagic or petechial. Neurologic examination showed the patient to be lethargic, with slow response consistent with his toxic appearance. Reflexes were depressed, and a Babinski sign was elicited on the left. No confirmatory evidence for pyramidal tract involvement was obtained.

*Results of Tests with Epidemic and Endemic Strains of Rickettsiae*

| Date (August) | Epidemic Strains | Endemic Strains |
|---|---|---|
| 6 | 1:64 | 1:16 |
| 9 | 1:512 | 1:128 |
| 12 | 1:512 | 1:64 |
| 19 | 1:512 | 1:64 |
| 26 | 1:256 | 1:32 |

Laboratory studies showed the urine to be normal. The hemoglobin on admission was 12.9 Gm. (89 per cent), and the white blood cell count was 7,000, with 68 per cent neutrophils, 24 per cent lymphocytes and 8 per cent monocytes. Chemical examination of the blood showed the urea and glucose content to be normal. No parasites or occult blood were demonstrated in the stool specimens. Stool, nasopharyngeal and throat cultures revealed none of the common pathogenic organisms. Blood culture was sterile. The reactions to serologic tests for syphilis were negative. Results of repeated serologic studies with typhoid H and O, paratyphoid A, Proteus $OX_2$ and $OX_{19}$, Brucella and sheep erythrocytes as antigens on August 6, 10, 13 and 19 were all negative. Complement fixation tests, performed by Dr. Herald Cox of the Lederle Laboratories Division, American Cyanamid Company, showed the typical serologic pattern of Brill's disease. The results obtained employing washed epidemic and murine strains of rickettsiae were positive (4 plus) on serial serum specimens, as shown in the table.

Aureomycin therapy was initiated at 12 noon August 6, when the patient's temperature was 103.6 F. (oral). The dose employed was 200 mg. (orally) every hour for three doses initially and thereafter 200 mg. every two hours day and night. In addition, because the patient appeared severely ill, intramuscular administration of 40.0 mg. of aureomycin dissolved in 2.0 cc. of 1 per cent procaine hydrochloride in distilled water was administered three times each day. The dosage of drug employed and the clinical course of this patient are graphically outlined in the figure.

Prompt improvement was noted in the well-being of the patient, with diminution of the headache within twelve hours after aureomycin therapy was started. The next afternoon the temperature was 99.8 F. (rectal). The dosage of aureomycin was reduced to 100 mg. every two hours, and treatment was discontinued at 8 a. m. on August 10. The intramuscular supplement of aureomycin was discontinued on the morning of August 8. Symptomatic improvement with disappearance of the rash paralleled the remission of fever. The patient improved

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6. Wong, S. C., and Cox, H. R.: Action of Aureomycin Against Experimental Rickettsial and Viral Infections; Conference on Aureomycin—A New Antibiotic, Section on Biology, New York Academy of Sciences, July 21, 1948.

7. Conference on Aureomycin—A New Antibiotic, Section on Biology, New York Academy of Sciences, July 21, 1948: Schoenbach, E. B.; Bryer, M. S., and Long, P. H.: Pharmacological and Clinical Studies with Aureomycin: A Preliminary Report; Lennette, E. H.; Meiklejohn, G., and Thelen, H. M.: Treatment of Q Fever in Man with Aureomycin.

rapidly and was asymptomatic when discharged from the hospital on August 12. When seen six days later, he was feeling well and was able to perform his duties as manager of a large supermarket during the ensuing week.

This patient was treated on the sixth day of his illness, with subsidence of fever by crisis within twenty-four hours. The rash also diminished rapidly and had disappeared at the end of forty-eight hours except for brownish stains on the abdomen. He received a total of 6.6 Gm. of aureomycin orally during the ninety-two hours of treatment and 240.0 mg. intramuscularly for a forty-four hour period.

### COMMENT

The diagnosis of Brill's disease was made because of the typhoidal appearance of the patient, congestion of the conjunctivas, severe headache, typical eruption and history of previous residence in an endemic typhus zone. Despite his absence from this region of Southeastern Europe for twenty-three years, and the interval since his purported attack of typhus in 1918, recrudescent typhus was considered as the most probable diagnosis. Serologic confirmation was subsequently obtained by complement fixation tests with the specific rickettsial antigens. I have noted the absence of agglutinins for strains of Proteus $OX_{19}$ and $OX_2$ on several occasions when the result of the more specific complement fixation test has been positive. The Weil-Felix reaction, of inestimable aid in diagnosis, cannot be employed to exclude rickettsial infection. The antigen common to strains of Proteus ($OX_{19}$ and $OX_2$) and rickettsiae comprises only one fraction of the antigenic mosaic of either organism.

The course of the disease appeared to be definitely influenced by aureomycin therapy. Among 18 patients personally observed during the past ten years in New York and Boston, febrile lysis occurred on the tenth to sixteenth day of illness. This patient was treated on the sixth day of his illness and was afebrile twenty-four hours later. Although the mortality rate for Brill's disease is almost negligible, it is a severely incapacitating disease and any agent which will materially alleviate the symptoms and shorten its duration is of value. No evidence of any toxicity due to the medication was observed. The intramuscular injections were well tolerated in this concentration for the short period this route of administration was employed.

### SUMMARY

A 42 year old Rumanian born man, ill with recrudescent epidemic typhus (Brill's disease), was treated on the sixth day of disease with aureomycin by oral and intramuscular routes. Prompt clinical improvement was observed. This is the first case of Brill's disease with a serologic pattern consistent with recrudescent epidemic typhus to be reported in Baltimore.

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**A New Sign of Coarctation of the Aorta.**—By making the patient stoop or bend forward with the arms hanging by the side, collateral arteries under the skin of the back and sides of the thorax suddenly appeared where none were visible before. . . . The reason for the sudden appearance of these arteries with this change of posture was rather puzzling at first. After discussion with Professor Whillis of the Anatomy Department, Guy's Hospital, he suggested that these particular movements simply widened the costoclavicular space. It follows that in cases of coarctation where this sign is positive, there must in ordinary positions be a sufficiently narrow space between the clavicle and the first rib to produce some constriction and obstruction of the subclavian artery. Any movement that increases the costoclavicular space will then relieve this partial obstruction of the subclavian, and so the vessels having their origin from the partially constricted artery will suddenly fill up and become larger so that collateral branches previously invisible will become easily seen. In cases (of coarctation of the aorta) that do not show this sign the space between the clavicle and the first rib is wide enough not to compress even the dilated subclavian artery. We do not think that compression by the other structures in the costoclavicular space, such as the nerve plexus or the scalenus muscles, plays any important part.—Maurice Campbell and S. Suzman, Coarctation of the Aorta, *British Heart Journal*, July 1947.

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# Council on Pharmacy and Chemistry

## REPORT TO THE COUNCIL

*The Council has authorized publication of the following report.*

Austin Smith, M.D., *Secretary.*

## CLINICAL EVALUATION OF ISOPROPYLEPINEPHRINE IN MANAGEMENT OF BRONCHIAL ASTHMA

LESLIE N. GAY, M.D.
and
JAMES W. LONG, M.D.
Baltimore

Within the past two years several reports have appeared covering the use of a new sympathomimetic amine in the symptomatic management of bronchial asthma.[1] This isopropyl modification of epinephrine, racemic 1 - (3 - 4 - dihydroxyphenyl)-2-isopropylaminoethanol, has been named variously "I.P.A." (Specific Pharmaceuticals, Inc.), "Aleudrin" in European literature, and "aludrine" in this country, "isorenin," now "isonorin" (Carroll Dunham Smith), and "isuprel" (Winthrop-Stearns, Inc.). The sulfate salt (aludrine sulfate) was the drug employed in the studies reported here. A purely clinical approach was used to evaluate the therapeutic effects of the drug and to assign it its proper place in the management of bronchial asthma. Four routes of administration were studied and an attempt made to determine the optimum dosage for each. The subjective and objective therapeutic effects of each method will be discussed separately. The patients treated in this series were selected from outpatient dispensary service, emergency room service, private practice and hospital ward groups, and consisted of males and females, of both white and colored races, ranging in age from 15 to 75 years. No attempt was made to classify or separate the asthmatic patients on the basis of allergenic causation. Wherever possible and practical, placebos were employed and their effects compared with those produced by the authentic drug. Patients benefited by placebos were not included in the series.

### SUBLINGUAL ADMINISTRATION

Readily soluble tablets containing 10 mg. of aludrine sulfate were employed as sublinguets. The patient was instructed to place one tablet beneath the tongue the moment that he was aware of an attack coming on, and to allow it to dissolve there without swallowing. If no benefit or ill effect was apparent in fifteen minutes a second sublinguet was to be used, and, after another interval of fifteen minutes, a third tablet could be tried. Repeated trials were carried out by 47 patients, each patient being given aludrine sulfate for the first two weeks, a placebo made to look and taste like the authen-

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From The Johns Hopkins University School of Medicine, and the Protein Clinic, Johns Hopkins Hospital.

This work was done under the auspices of the Therapeutic Trials Committee, Council on Pharmacy and Chemistry, of the American Medical Association and was aided by a grant from the Carroll Dunham Smith Pharmacal Company, New Brunswick, N. J.

[1] (*a*) Charlier, R.: L'utilisation des aerosols d'aleudrine pour le traitment prolonge de l'asthme, Rev. belge sc. med. **17**: 108 (April) 1946; (*b*) Therapeutical Studies in Bronchial Asthma with the Aerosols of Aleudrin, M. Times, New York **75**: 277 (Oct.) 1947. (*c*) Segal, M. S., and Beakey, J. F.: The Use of 1-(3',4'-Dihydroxyphenyl)-2-Isopropyl-Aminoethanol for the Management of Bronchial Asthma: A Preliminary Report, Bull. New England M. Center **9**: 62 (April) 1947; (*d*) Management of Bronchial Asthma, Ann. Allergy **5**: 317 (July-Aug.) 1947.

tic tablet for use the second two weeks and again the original aludrine tablet thereafter. Those patients experiencing mild attacks of asthma reported moderate to marked relief in every instance but one. Only 1 patient in 25 with mild asthma failed to obtain relief using the sublinguet as instructed. The majority (21 out of 25) could completely abort the attack with the use of one sublinguet if taken promptly at the onset of wheezing. If, however, the patient allowed his asthma to increase in severity and become fully established, relief afforded by the linguet taken then was proportionately less and other treatment had to be used. These patients suffering from attacks of moderate severity reported less favorably, only 7 out of 16 obtaining moderate to marked relief, 3 mild relief and 6 of the 16 no benefit at all. Six patients experiencing frequent paroxysms of severe asthma obtained no relief with repeated use of sublinguets. In those patients benefited, relief was generally felt in three to five minutes and lasted from one to four hours. In many instances of mild asthma the patient would report complete relief with one or two sublinguets and no return of asthma for twenty-four or more hours. About one third of all patients using the sublinguets (16 of 47) reported palpitation of a mild fleeting nature, in no instance distressing enough to withhold the drug. Of the 47 patients using this route 2 complained of precordial pain, 3 of headache, 2 of nausea and 1 of nervousness. When all patients were asked to state their preference between the aludrine linguet and the common antiasthmatic tablet combining aminophylline, phenobarbital and ephedrine (which was used routinely prior to the aludrine study), they chose the later combination in a ratio of 3 to 1. The reasons most often given for this choice was the ability of the aminophylline-phenobarbital-ephedrine combination to relieve asthma of severity not appreciably benefited by the aludrine linguet, the greater duration of relief and the relative absence of unpleasant side effects attending the use of the aminophylline-phenobarbital-ephedrine tablets. All agreed, however, that the linguet afforded the quickest relief and that its greatest usefulness was in the prompt abortion of asthma of mild degree.

### ORAL ADMINISTRATION

This was the first route studied and the information gained here as to effective dose, patient tolerance and side effects served as a guide in the approach to other methods of administration. Aludrine sulfate was given in capsule form in doses of 15 mg. to 50 mg. It was found rather early that there is wide variation in both therapeutic response and incidence of side actions among patients. One boy of 15 years experienced such palpitation and dizziness after an oral dose of only 15 mg. that he was able to identify the drug given by inhalation at a later date on the basis of the side effects which resulted. In spite of his apparent sensitivity, however, he obtained no relief of his asthma with this dosage. On the other hand, a woman of 36 years reported that any thing less than 50 mg. of aludrine per dose failed to help her asthma significantly and that the side effects of mild palpitation and nervousness were not objectionable enough to her to preclude use of the drug.

With doses by mouth of 25 mg. or more the majority (80 per cent of 30 patients) experienced side actions of a severe and disagreeable nature sufficient to render the routine use of the drug in such dosage impractical. Of the patients in this group experiencing mild asthma 75 per cent reported moderate to marked relief with doses of either 25 mg. or 50 mg. The larger dose produced side effects of greater intensity and duration without significant increase in the degree of relief afforded. Of the patients experiencing paroxysms of severe asthma only 25 per cent reported significant benefit with doses of either 25 or 50 mg.

As a result of these observations 15 mg. was adopted as the initial trial dose to be given routinely. In spite of this smaller dose 75 per cent of 36 patients receiving it reported some side effect. With this dosage however, the side actions were of a mild and fleeting nature and in only 1 instance (already reported) of a severity great enough to prohibit use of the drug. The nature and incidence of these side effects will be discussed separately. Eighty-three per cent of all patients with mild asthma reported moderate to marked relief following 15 mg. of aludrine taken at the onset of the attack. Those patients who allowed their asthma to go unabated and those experiencing severe asthma rapidly after onset failed to obtain significant benefit from 15 mg. of aludrine and had to resort to epinephrine by inhalation or injection, aminophylline, oxygen, etc.

Seven patients with chronic or frequently recurring low grade asthma (subacute status) were given 15 mg. doses at 8, 12, 4 and 8 o'clock in attempt to allay or reduce the frequency of attacks, but no appreciable results were observed. While there was a tendency to a lessening of the severity of the wheezing in some instances, none of the patients was freed of his asthma without recourse to supplemental forms of treatment.

Those patients helped by oral medication reported relief in twenty to thirty minutes with durations ranging from one to four hours. As with the linguets, many mild attacks aborted early completely subsided for twenty-four or more hours.

### ADMINISTRATION BY INHALATION

Aludrine sulfate in an isotonic solution of 1:200 strength was administered by hand nebulizers to 48 patients. This group included patients treated in the outpatient clinic, on the hospital ward, in the emergency room and those furnished with solution and nebulizers for use at home. Patients were instructed to take five inhalations at the very onset of wheezing and to repeat this again in five minutes if necessary and if no untoward symptoms appeared. After several trials each patient was able to determine for himself the optimum number of inhalations and courses to use in his individual case. As one would expect, dosage had to be individualized, the milder asthma requiring but a single course of three to five inhalations while the asthma of greater severity called for repeated courses of six to eight inhalations. Of the four routes of administration, we believe the inhalation of a nebulized spray produced the most beneficial therapeutic response and the lowest incidence of untoward side actions. Every patient experiencing mild asthma reported immediate and complete relief after one course of 3 to 6 inhalations. Sixteen of 19 patients experiencing asthma of moderate severity obtained moderate to marked relief with two to three courses of 4 to 6 inhalations each. The remaining patients obtained only mild relief. None of the 19 patients failed to obtain some benefit. Sixteen of 21 patients experiencing frequently recurrent paroxysms of severe asthma obtained moderate to marked relief employing one to three courses of 6 to 8 inhalations each. Most of the cases of severe asthma were those requiring treatment in the emergency room of the outpatient department because of failure to respond to the usual procedures and medications used at home. Response was quick in every case, beginning in two to three minutes and reaching its maximum in about five minutes. The optimum dosage in the majority of such cases was about 6 inhalations. The benefit obtained did not appear to be appreciably increased if more than 6 inhalations were given in any one course. It was noted consistently, however, that the duration of the relief produced was inversely proportional to the severity of the asthma, the benefit in the more extreme cases lasting only about fifteen minutes, at which time another series of inhalations had to be given. Patients with milder asthma, on the other hand, reported relief ranging from two to twelve hours. Only 2 patients with severe asthma failed to obtain some benefit from inhaled aludrine sulfate mist.

One of the most gratifying observations with the use of the inhalation route was the low incidence of unpleasant side effects. Of the 48 patients using this method only 2 experienced palpitation, and questioning revealed that in both instances this occurred only after frequent and prolonged use beyond the limits set in our instructions. With cessation of the drug, the palpitation in both cases was mild and fleeting. It was our conclusion that aludrine mist of a 1 : 200 dilution administered as set forth was capable of significant bronchial-dilating action in mild to severe bronchial asthma by way of its local pharmacodynamic effect on contact within the bronchial tree, and that any amount reaching the systemic circulation was of inadequate concentration to produce subjective toxic effects.

One important and unexpected beneficial effect produced by inhalations of aludrine was the decided increase in expectoration in persons with chronic infective (intrinsic) asthma. Patients reported that their sputum was thinner, more abundant and more easily raised. This was an early and consistent finding in all such patients treated by this route. The far reaching importance of this effect is obvious to all familiar with treating this variety of asthma.

Fifteen patients were selected to compare the effects of aludrine and epinephrine administered by inhalation and to state their preference. Aludrine was preferred by 12 patients. Here again patient response and tolerance was found to be widely variable, but all agreed that aludrine acted somewhat more rapidly and that benefit was generally equal to or greater than that produced by epinephrine. Five patients in status asthmaticus of several hours' duration and no longer responsive to epinephrine (1 : 100) inhalations (so called epinephrine-fast) responded promptly to the initial course of aludrine spray. It was the consensus of all concerned that, while the response to aludrine inhalation was quicker than to epinephrine by inhalation or intramuscular injection, or to aminophylline given intravenously, the duration of benefit was definitely shorter than that following the latter drugs.

Anyone desiring to use this drug in solution should be warned of the rapidity with which it becomes oxidized on exposure to air and light. It is best stored in tightly stoppered or sealed amber glass and in a dark place. Exposure to air and light for just a few hours will result in pinkish to brownish discoloration. Such change, however, does not render the drug inert, and many patients claimed that they were unable to detect any lessening of therapeutic effect after the solution had become rather brown in their bottles or nebulizers. These same patients were not benefited by inhalations of saline placebos. Repeated use of discolored solutions by many patients failed to produce any unpleasant subjective or objective response. While the manufacturers are attempting to prepare a more stable solution of this preparation, the property of rapid discoloration should not discourage its use.

### SUBCUTANEOUS ADMINISTRATION

Sterile isotonic solution of aludrine sulfate of a 1 : 1000 dilution was given by subcutaneous injection in doses ranging from 0.1 cc. to 0.5 cc. to 10 patients during paroxysms of severe asthma. Eight of the 10 patients obtained prompt and pronounced benefit; in some instances the relief produced was dramatic. However, every patient receiving this concentration experienced side effects of moderate to marked degree, in some instances sufficiently alarming to preclude the continued use of the drug in a strength of 1 : 1,000. All injections thereafter were of a 1 : 5,000 dilution with doses varying from 0.3 cc. to 0.5 cc. and repeated as warranted.

Sixteen patients experiencing episodes of mild asthma were given 0.3 cc. of aludrine sulfate 1 :5,000. Every patient received prompt and definite relief, generally a complete abolition of the wheezing state. Of 16 patients with asthma which we classified as of moderate severity, 10 obtained decided relief following 0.3 cc. to 0.5 cc. of aludrine 1 : 5,000, 4 obtained only slight relief, and 2 obtained no relief at all. Nine patients with severe prolonged asthma were given this dosage, but in no instance was the relief obtained comparable to that seen in those patients with asthma of less severity. Only 4 of the 9 patients obtained significant benefit and then only after a second dose given fifteen minutes following the first injection. The remaining 5 patients of this last group were either helped not at all or so slightly that the drug was of no value. It should be pointed out, however, that this group consisted of patients notoriously refractory to therapy and generally required a combined therapeutic attack of hospitalization, oxygen inhalation, repeated aminophylline by vein, hypertonic sucrose, etc. With this dosage only 17 of 41 patients (41 per cent) experienced side effects, and in no instance were these of a nature or degree sufficient to render the dosage unsafe or impractical.

It was believed that aludrine sulfate 1 : 5,000 in doses of 0.3 cc. to 0.5 cc. given subcutaneously generally gave a therapeutic effect equivalent to that produced by 0.3 cc. to 0.5 cc. of epinephrine 1 : 1,000 given intramuscularly. Except for the fact that aludrine appeared to have a slightly more rapid onset of action we did not find it significantly superior to epinephrine for use by injection. On five occasions, however, we obtained favorable response to aludrine in patients who failed to receive further asthmadilator action from repeated injections of epinephrine, and we feel that a trial of aludrine (0.3 cc. to 0.5 cc. of 1 : 5,000) is indicated in any patient in the so-called epinephrine-fast state.

The onset of action of aludrine given subcutaneously was apparent in one to three minutes, and its maximum subjective and objective effects generally occurred from five to seven minutes after injection. As with the other methods of administration, the duration of benefit varied inversely with the severity and duration of the asthma. The milder attacks were relieved completely and the patient would report freedom from wheezing for hours to days. Relief afforded the asthmas of greater severity and longer standing generally faded in twelve to fifteen minutes and recourse to repeated injection or supplemental treatment was necessary.

### PHARMACODYNAMICS

*Respiratory.*—Aludrine is but a modified epinephrine, and its action is fundamentaly epinephrine-like; i. e., sympathetic stimulation with resultant inhibition of bronchiolar muscles. The drug is effective when administered by mouth, sublingual absorption, inhalation and injection. Its action is most rapid and effective when it is inhaled in the form of a nebulized mist. Subcutaneously injected aludrine is the second most rapid and the sublinguet third. In many instances buccal absorption is both rapid and extensive enough to make its use beneficial. Aludrine by mouth is the slowest and least reliable. In optimum dosage, as already discussed, its bronchiole-dilating effect is equivalent to that generally observed with therapeutic doses of epinephrine. The increase in vital capacity concomitant with the bronchiole-dilating effect is obvious. This correlation has been studied and reported by Segal and Beakey.[1d] The tendency of aludrine to render bronchial secretions more fluid and thus facilitate the elimination of sputum has been mentioned.

*Cardiovascular.*—On those patients given aludrine by injection observations were made of the cardiac rate and rhythm and blood pressure fluctuations; in some instances electrocardiographic tracings were recorded. Aludrine 1:1,000 was given to 15 patients in doses ranging from 0.1 cc. to 0.5 cc. In every patient but 1 a significant tachycardia resulted, all rates exceeding 100 beats per minute within three to five minutes after injection. While each patient's response was determined by his individual tolerance to sympathomimetic stimulants, it was generally observed that the smaller doses produced a cardiac acceleration of less degree and shorter duration than the larger doses. Rates following administration of aludrine 1:1,000 ranged from 108 to 176, the greater increases resulting from doses of 0.3 cc. to 0.5 cc. The increase in rate usually began ninety to one hundred and twenty seconds following injection. With doses of 0.1 cc. and 0.2 cc. the rate returned to preinjection level within fifteen minutes. With doses of 0.3 cc. to 0.5 cc. the tachycardia persisted from thirty minutes to one hour. Fourteen of the 15 patients reported palpitation of varying degree in association with their tachycardia. (See the section on side actions.)

Ten of the 15 patients experienced an increase in their pulse pressure, the systolic rising from 10 to 30 mm. and the diastolic falling from 10 to 30 mm. Three patients showed no significant change in the systolic reading but a 20 to 30 mm. fall in the diastolic level. Two patients experienced precipitate falls in both systolic and diastolic levels within three minutes after injection. In one 19 year old boy in severe status asthmaticus for thirty-six hours and "fast" to epinephrine and aminophylline a full picture developed of peripheral circulatory collapse (shock) with a drop in blood pressure from 130 systolic and 80 diastolic to 80 systolic and (?) diastolic following an injection of 0.2 cc. of aludrine 1:1,000. The second patient, a 65 year old woman, had a prompt fall in blood pressure from 138 systolic and 80 diastolic to 80 systolic and 40 diastolic after receiving 0.5 cc. of aludrine 1:1,000. She experienced decided weakness, palpitation and generalized tremor, but the shock syndrome did not develop before her systolic pressure gradually rose to 120 systolic and 60 diastolic fifteen minutes later. One patient with hypertension with pretreatment readings of 170 systolic and 110 diastolic gave the following response to 0.3 cc. of aludrine 1:1,000: five minutes, blood pressure 180 systolic and 85 diastolic; fifteen minutes, 175 systolic and 80 diastolic; thirty minutes, 175 systolic and 100 diastolic, and one hour, 150 systolic and 105 diastolic. In all patients the degree and duration of blood pressure changes were in close correlation to the tachycardia produced.

Electrocardiograms were made on 6 patients prior to and following the administration of 0.1 cc. of aludrine 1:1,000. Five of these tracings revealed the development of significant tachycardia following injection of the drug. In no instance was there a disturbance of rhythm. With the exception of an increased rate two of the six tracings were essentially the same before and after drug administration. The other four records showed the following significant changes in configuration:

1. In a 15 year old Negro boy there was a rate increase from 80 to 125; lengthening of P-R interval from 0.10 to 0.12; sagging of $RT_2$ and $RT_3$; upright $T_2$ and $T_3$ changed to a minus-plus diphasic, and lower voltage $T_2$ and $T_3$. 2. In a 43 year old Negro man, the rate increase was minimal, from 115 to 120; P-R interval shortened from 0.14 to 0.12; low $T_1$ changed to isoelectric $T_1$; $T_2$ and $T_3$ to lower voltage, and upright $T_4$ to plus-minus diphasic $T_4$ with coving of S-$T_4$. 3. In a 44 year old Negro man the rate increased from 90 to 110; P-R interval shortened from 0.14 to 0.12; upright $P_1$, $P_2$ and $P_3$ changed to diphasic $P_1$, $P_2$ and $P_3$; isoelectric S-$T_2$ to 1 mm. depression of S-$T_2$, and upright $T_4$ to lower voltage minus-plus diphasic $T_4$. 4. In a 50 year old Negro woman, the rate increased from 80 to 100; P-R interval shortened from 0.18 to 0.14, and upright $T_4$ changed to plus-minus diphasic low voltage $T_4$.

Within two minutes after the injection of 0.1 cc. of aludrine 1:1,000 the 44 year old Negro man (case 3) reported the onset of substernal discomfort of a nature strongly suggestive of coronary insufficiency. This persisted for ten minutes and then spontaneously subsided. It will be noted that the changes occurring in this patient's electrocardiogram following the injection of aludrine are those ascribable to coronary insufficiency and myocardial ischemia.[2] Review of the changes listed will show that all of them are significant positive findings as interpreted by the Master Exercise Test for the demonstration of coronary insufficiency.[3] It will be further observed that such changes occurred in 1 patient (case 2) without a significant coincident increase in heart rate, indicating that the S-T segment and T wave changes seen here are not necessarily the result of concomitant tachycardia. The fact that aludrine in a dose of 0.1 cc. of a 1:1,000 solution is capable of producing the alterations cited, regardless of the condition of the heart prior to administration of the drug, demands the adoption of a weaker solution for routine use and the careful appraisal and selection of patients who are to receive it. In view of these findings it is obvious that aludrine overdosage is of great potential danger in a patient whose myocardium might be partially anoxic by virtue of an attack of bronchial asthma. We are of the opinion that the action of aludrine in these observations is not one of coronary artery constriction but of decided increase in the force of myocardial contraction and a resulting demand for more oxygen, which, of course, is not met.

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[2] Ashman, R., and Hull, E.: Essentials of Electrocardiography, New York, The Macmillan Company, 1941, chap. 14, pp. 319-329.

[3] Master, A. M.; Friedman, R., and Dack, S.: The Electrocardiogram After Standard Exercise as a Functional Test of the Heart, Am. Heart J. 24:777 (Dec.) 1942.

Because of the high incidence of tachycardia and palpitation, the two occurrences of precipitate drop in blood pressure and the electrocardiographic changes described, aludrine 1 : 1,000 was supplanted by a solution of 1 : 5,000 for subsequent studies. Forty-seven patients were given 0.3 cc. of aludrine 1 : 5,000, and electrocardiograms were obtained on 6 of these prior to and after injection. In spite of the reduction in concentration of the drug 53 per cent of these patients obtained both tachycardia and blood pressure changes. However, in only 2 instances were the changes as great as those following the use of the 1 : 1,000 concentration. The majority of the pulse increases were no more than 10 to 20 beats per minute. In only 3 patients did the rate increase by 30 beats per minute and in 2 patients by 45 beats per minute. The duration of these increases varied from five to ten minutes. We detected only one instance of a disturbance in rhythm, namely the appearance of frequent auricular and ventricular extrasystoles in a 31 year old Negro woman who had a regular sinus rhythm prior to drug administration (case 5). The usual blood pressure changes in this series consisted of a systolic rise of from 10 to 20 mm. without the associated fall in diastolic level so characteristically observed following use of the 1 : 1,000 solution. In general, diastolic levels were found either to remain stationary or to rise from 5 to 10 mm. Blood pressure falls were observed in only 2 patients, in neither case significant: 130 systolic and 90 diastolic to 110 systolic and 85 diastolic and 130 systolic and 80 diastolic to 110 systolic and 70 diastolic. One patient with a pretreatment hypertensive level of 188 systolic and 110 diastolic responded as follows: two minutes after injection 200 systolic and 110 diastolic; five minutes, 180 systolic and 100 diastolic; ten minutes, 185 systolic and 105 diastolic, and fifteen minutes, 185 systolic and 110 diastolic.

Again six electrocardiograms were made prior to and following the subcutaneous injection of 0.3 cc. of aludrine 1 : 5,000. One of the six tracings showed no remarkable change except for a moderate increase in rate. The changes in the other five tracings are as follows:

5. In a 31 year old Negro woman there was an increase in rate from 80 to 125; shortening of P-R interval from 0.16 to 0.12; development of frequent auricular and ventricular premature systoles; change of upright $T_1$ to flat $T_1$, and change of low voltage diphasic $T_2$ and $T_3$ to inverted $T_2$ and $T_3$. 6. In a 50 year old Negro woman there was an increase in rate from 64 to 110; shortening of P-R interval from 0.15 to 0.12, and a change from diphasic $T_4$ to inverted $T_4$. 7. In a 57 year old white man there was an increase in rate from 68 to 80; dipping of $RT_2$ and $RT_3$ segments and $T_4$ of lower voltage and early inversion of downward limb. 8. In a 53 year old Negro man there was an increase in rate from 68 to 74 and a change from a flattened diphasic $T_4$ to an upright $T_4$. 9. In a 47 year old Negro woman there was an increase in rate from 88 to 110, a change from an upright $T_2$ to a flat $T_2$ and from a flat $T_3$ to a slightly inverted $T_3$.

It will be noted that these changes are of the same pattern as those already cited which followed the administration of the 1 : 1,000 concentration. However, with the exception of case 5, the alterations observed with the use of aludrine 1 : 5,000 are proportionately of less degree than those found with the 1 : 1,000 strength. Case 1 is another example of the wide variation in patient tolerance to this sympathomimetic amine. These further observations of the ability of aludrine in 1 : 5,000 concentration significantly to affect cardiac function strengthened our belief in its potential danger if not routinely given in small doses and to selected persons. We are of the opinion that dosage up to 0.5 cc. of a 1 : 5,000 concentration constitutes a safe range when the size of the dose is governed by the age and size of the patient, his tolerance to sympathomimetic stimulants and the severity of his asthma. We observed no cumulative effect or untoward action when these small doses were repeated at fifteen minute intervals.

*Blood Sugars.*—No constant or significant change in blood sugar concentration was found in 6 patients whose blood sugar levels were determined prior to and fifteen minutes after subcutaneous administration of 0.3 cc. of aludrine 1 : 5,000.

The levels were as follows:

| Case | Before Drug | After Drug |
|---|---|---|
| 1 | 83 | 75 |
| 2 | 77 | 69 |
| 3 | 71 | 71 |
| 4 | 100 | 87 |
| 5 | 69 | 73 |
| 6 | 91 | 100 |

## SIDE EFFECTS

The incidence of subjective side effects varied with the method of administration as in the accompanying tabulation.

| Method and Dose | Percentage |
|---|---|
| Sublingual, 10 mg. | 33 |
| Oral, 25-50 mg. | 80 |
| Oral, 15 mg. | 75 |
| Inhalation, 1 : 200 | 4 |
| Subcutaneous, 1 : 1,000 | 100 |
| Subcutaneous, 1 : 5,000 | 41 |

While the incidence was relatively high (33 per cent) with use of the sublinguets, the side actions were usually mild and fleeting. Two patients reported mild precordial aching in association with their palpitation, and though the degree of the discomfort was not alarming we advised against the further use of the drug. Three others reported headache, 2 reported nausea and 1 experienced nervousness, but here again the symptoms were merely unpleasant and never distressing. Because of the low incidence and comparative mildness of their side effects the sublingual and inhalation methods of administration were most favored by both doctors and patients. In our hands the occurrence of unpleasant side actions of varying degree in well over the majority of patients taking the drug orally rendered this method of administration impractical. While reduction in the size of the oral dose lessened the severity and duration of the side effects it made no significant difference in their incidence. The nature and degree of side effects following subcutaneous injection in every patient given a 1 : 1,000 concentration made this route and dosage unsafe. Reduction in the drug concentration to a 1 : 5,000 solution reduced the incidence of subjective side actions by more than half and showed such dosage to be safe and practical if reasonable care is taken in selection of patients.

The side effects observed are given in the accompanying list in their decreasing order of frequency.

| Side-Effect | Percentage of All Side-Effects |
|---|---|
| 1. Palpitation | 90 |
| 2. Nausea | 19 |
| 3. Headache | 17 |
| 4. Nervousness | 16 |
| 5. Tremor | 14 |
| 6. Dizziness | 13 |
| 7. Precordial ache | 9 |
| 8. Weakness | 7 |
| 9. Sweating | 7 |
| 10. Anginal pain | 3 |
| 11. Epigastric pain | 3 |
| 12. Vomiting | 3 |
| 13. Tinnitus | 3 |
| 14. Flushing of face | 1 |
| 15. Diarrhea | 1 |

The severity and duration of these symptoms were generally in direct proportion to the size of the dose given. However, there were a few patients exhibiting unusual sensitivity to the drug, and in these the side effects were aways alarming with minimal effective doses. It was our observation that, in general, side effects did not tend to decrease in severity or incidence on repeated use of the drug in the same patient.

*Side Effects of Serious Import.*—Three patients experienced acute episodes of typical coronary insufficiency pain, 2 after taking aludrine by mouth, and 1, already reported, after 0.1 cc. of aludrine 1 : 1,000 subcutaneously (case 3 of the first series of electrocardiograms).

Case 10.—A 45 year old Negro woman, hypertensive, after three oral doses of aludrine, 25 mg. each, six hours apart, experienced an episode of substernal pain with radiation into teeth, both arms and hands, lasting from twenty to thirty minutes. She had not had angina prior or subsequent to use of aludrine.

Case 11.—A 37 year old Negro woman, after one oral dose of aludrine of 25 mg. and four doses of 50 mg. each, all three to three and one-half hours apart (used to abort recurring asthma) experienced sharp substernal pain with radiation across left precordium and into left arm to elbow, lasting about five minutes. She had not had angina prior or subsequent to use of aludrine.

Nine patients reported precordial ache or "heart soreness," in each instance accompanying palpitation of moderate to marked severity and duration. In 5 of these cases the disturbance followed oral doses of 25 mg. or greater; 3 instances followed use of the 10 mg. sublinguet, and 1 occurrence was precipitated by frequent and prolonged inhalation of aludrine 1 : 200 nebulized mist. All of these patients were in the 40 to 60 year age group.

The single case of sudden shock has already been noted. It occurred in a 19 year old white male, in status asthmaticus for thirty-six hours and "epinephrine fast," following subcutaneous injection of 0.2 cc. of aludrine 1 : 1,000. Within three minutes he was in profound shock, with marked pallor, weakness, sweating, vomiting, a blood pressure fall from 130 systolic and 80 diastolic to 80 systolic and (?) diastolic and a pulse increase from 92 to 120. He responded promptly to 0.5 cc. of epinephrine 1 : 1,000 given intramuscularly.

The blood morphology was studied in 10 patients prior to and after continual oral use of aludrine for periods ranging from four weeks to three months, and no significant alterations of the blood picture were found in any case.

### SUMMARY AND CONCLUSIONS

Isopropylepinephrine, 1-(3-4 dihydroxyphenyl)-2-isopropyl-amino-ethanol (aludrine) is a sympathomimetic amine capable of bronchial-dilating action in bronchial asthma when administered by mouth, sublingual absorption, inhalation and subcutaneous injection.

There is wide variation among patients in both therapeutic response and occurrence of side actions.

The inhalation of a nebulized mist of aludrine 1 : 200 proved to be the best method of administration, generally affording relief in asthma of all severity with an incidence of side effects of only 4 per cent. Aludrine in this form greatly facilitated the liquefaction and excretion of sputum in chronic asthma.

Sublingual absorption of 10 mg. pellets is the second method of choice because of its convenience, speed of action and the fact that the patient can discard all undissolved drug in the event of serious side effects. The sublinguet is of greatest value in the early abortion of mild asthma. It is of less benefit in moderate asthma and of no benefit in severe asthma. It causes mild and fleeting side actions in 33 per cent of users.

The routine use of aludrine by mouth is impractical because of the high incidence of side effects (75 per cent) with use of the minimum effective dose (15 mg.). In general, the relief afforded does not justify the unpleasant symptoms associated with its administration.

The high incidence of pronounced side effects and the demonstration of electrocardiographic pattern changes are indicative of the potential danger in the use of aludrine of 1 : 1,000 concentration subcutaneously. In selected patients doses of 0.3 cc. to 0.5 cc. of aludrine 1 : 5,000 are safe and practical, with a therapeutic efficacy about equivalent to the customary doses of epinephrine 1 : 1,000.

Experience has shown that aludrine by inhalation and injection is effective in those patients no longer responding to epinephrine, the so-called epinephrine fast.

Aludrine in 1 : 1,000 concentration given subcutaneously causes marked tachycardia and increase in pulse pressure, with moderate rise in systolic and fall in diastolic blood pressure levels. Aludrine in 1 : 5,000 concentration causes a slight increase in cardiac rate and a slight elevation of systolic blood pressure, the diastolic generally remaining constant.

Overdosage of aludrine given by mouth or subcutaneous injection and therapeutic doses given by the same routes to sensitive persons are capable of producing symptomatic and electrocardiographic evidence of coronary insufficiency. Aludrine in therapeutic doses administered sublingually and by inhalation gave no subjective evidence of coronary insufficiency.

Aludrine in therapeutic dosage does not significantly alter blood sugar concentration.

Side effects are relatively common with every method of administration except inhalation. Their nature and incidence are discussed. Serious side actions of anginal pain, precordial ache and shock are noted.

Aludrine displayed no damaging effect on the blood picture of 10 patients using it orally for prolonged periods.

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SATURDAY, FEBRUARY 12, 1949

## POLITICS IN SCIENCE AND IN GENETICS

Genetics, which is established as a science, has again become a whipping boy for political philosophy. Repeatedly in history politicians try to misuse the observations of genetics to distort truth as a buttress for political beliefs. Hitler, aided by German pseudoscientists, attempted to prove theories of racial superiority. Heredity and gene inheritance was all and environment nothing; therefore purification of race demanded elimination of all gene influences other than those of purely Aryan derivation, ridiculous and impossible as was that objective. Now in Russia equal and opposite claims are made (i. e., heredity and gene inheritance mean nothing and environmental influences are all). Dr. H. J. Muller, Nobel Prize winner for work in genetics, and Sir Henry Dale, former president of the British Association for the Advancement of Science, have resigned from the Academy of Sciences of the U. S. S. R. Their resignations were submitted in protest against the frontal attack on science made in the recent decision of the Central Executive Committee of the Communist Party. The entire science of genetics based on the theories of Mendel and Morgan was repudiated. On the surface, the controversy in Russia relates to two scientific positions regarding genetics: Mendel's theories of gene inheritance and the noninheritance of acquired characters, and the opposite view, the rejection of the part played by genes in heredity and acceptance of inheritance of acquired characteristics. The scientific aspects of both points of view are clear, and the evidence is considered sufficient for a proper scientific choice between the alternatives.

Classical geneticists have accepted Mendel's ideas and demonstrated these ideas times without number. T. D. Lysenko, however, who represents the Russian point of view, insists that classical ideas are all wrong. He states that valuable crop plants can be improved by bettering the environment and that these improvements are subsequently transmitted to the plant offspring. Lysenko adds that, since classical ideas have been demonstrated to be wrong, any one who persists in adhering to them is guilty of sabotage of the Soviet State.

At the August 1948 meeting at the Lenin Academy of Agricultural Sciences, Lysenko's ideas were officially approved by the Central Executive Committee of the Communist Party. The committee stated that Lysenko's ideas were in accord with the Bolshevik party's political philosophy. Several of Lysenko's opponents therefore confessed their error and made public recantation of their so-called scientific heresies; other scientists were dismissed from scientific positions. As far as Russia was concerned, a scientific difference of opinion was settled by political decree.

A report on the Russian attitude toward genetics in the December 1948 *Bulletin of the Atomic Scientists*[1] points out that the controversy lacks a real scientific basis. Because Soviet politicians had proved themselves unwilling or unable to grasp the technicalities of genetic reasoning, they had taken a dislike to its conclusions for motives of their own. The fact that the politicians were unable to secure any well known geneticist to sponsor a point of view directly opposed to the classical beliefs led to the selection of Lysenko, a plant breeder without special renown, as a scientific stooge through whom political propaganda could flow. The report states that Lysenko's education and experience in genetics "gives him no more claim to being a geneticist than does doctoring dogs for worms."

The political stake of Communist Russia in genetics is an obvious one. All Russian scientists must subscribe to the Doctrine of Dialectical Materialism,[2] which implies that (1) everything is material (2) matter is eternal but is always changing and (3) matter is composed of opposing elements whose interaction is the cause of change. In the field of genetics this presumably fits Lysenko's ideas. Pure lines inevitably degenerate (matter always changes); mutations can be induced by environment; characters best adapted to the environment are dominant, and crosses within a pure line restore vigor. As these ideas are generally not in accord with classical genetics it supposedly follows that chromosomes and genes can have nothing to do with heredity and these theories should be abolished. Lysenko's ideas also are in accord with dialectical materialism in human genetics, which must permit the belief that all humans are born as a *tabula rasa,* i. e., a clean slate on which anything may be written by environment. This last thereby permits a belief in Soviet promises of a future politicosocial utopia. In a democracy which respects the scientific demonstrations of classical genetics each person cannot be promised equal genetic inheritance, but only equal opportunity under the law. Soviet political pseudogenetics, however, permits a promise of equal birth inheritance to all. Whenever scientific decisions are made for political purposes rather than on the basis of scientific evidence, the inevitable loser is mankind itself.

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1. Muller, H. J.: The Crushing of Genetics in the USSR., Bull. Atomic Sc. **12:** 369 (Dec.) 1948.
2. Sax, K.: Soviet Science and Political Pholosophy, Scient. Monthly **65:** 43 (July) 1947.

## SYRINGE-TRANSMITTED HEPATITIS

An editorial in the Sept. 22, 1945 issue of THE JOURNAL[1] pointed out that the data with regard to syringe-transmitted infection are in accord with what is known about hepatitis transmitted by the injection of yellow fever vaccine containing dried human plasma, of measles or mumps convalescent serum and of blood in transfusions. In all these conditions injection of presumably infected human blood or plasma has been followed by cases of hepatitis two or four months later. Darmady and Hardwick[2] found among 182 consecutive patients with jaundice admitted to their hospital that 34 had received intravenous or intramuscular injections within the previous two hundred days. These authors stress two points in the prophylaxis of syringe hepatitis: First, the quantity of icterogenic principle involved may be extremely small and can be harbored in any syringe. Thus Bradley, Loutit and Maunsell[3] produced jaundice in human subjects by the administration of as little as 0.1 cc. of homologous serum. Secondly, this agent is heat resistant and is not killed by the ordinary methods of sterilization.

Morton[4] reports 64 cases of hepatitis among 338 men treated in a venereal disease clinic. Incubation periods ranged from one hundred to two hundred days and over. The sterilizing capacity in the clinic was found to be inadequate and the number of syringes insufficient to allow proper cleaning and sterilizing.

Malmros[5] and his co-workers suggest that the term "homologous serum jaundice" be changed to "inoculation hepatitis," since the virus is already present in the blood during the preicteric period and can be transferred not only with the serum, but also with plasma and whole blood. Malmros observed in 1923 an epidemic of hepatitis among diabetic patients treated in the Medical Clinic of Lund. An exhaustive study established that the virus of the disease had been transferred by inoculation from one patient to another in connection with samplings for blood sugar analyses.

Mendelssohn and Witts[6] demonstrated in an experiment the risk of introducing infection from venepuncture with syringes that are washed but not sterilized. With a syringe containing methylene blue they punctured a rubber tube through which water was running, pointing the needle in the same direction as the water was flowing. As soon as the negative dynamic pressure caused by the flow of water became higher than the hydrostatic pressure, the contents of the puncturing syringe were drawn by suction into the water flowing through the rubber tube, staining the water blue. Malmros and his co-workers confirmed this experiment by using a more sensitive indicator, namely, a 20 per cent sodium fluorescein solution. When blood is taken from a vein with a syringe by the orthodox technic, some of the blood is sucked back into the vein when the tourniquet is released. If the syringe is not sterile, the patient is exposed to infection. These authors suggest that the risk of infection can be eliminated in two ways: (1) by the use of sterile needles alone without syringes at venepuncture; (2) by the provision of a sufficient number of syringes so that a fresh sterilized instrument is used for every patient.

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[1] Syringe Transmitted Hepatitis, editorial, J. A. M. A. **129:** 278 (Sept. 22) 1945.

[2] Darmady, E. M., and Hardwick, C.: Syringe-Transmitted Hepatitis, Lancet **2:** 106 (July 28) 1945.

[3] Bradley, W. H.; Loutit, J. F., and Maunsell, K.: An Episode of Homologous Serum Jaundice, Brit. M. J. **2:** 268 (Aug. 26) 1944.

[4] Morton, R. S.: Syringe-Transmitted Jaundice, Brit. M. J. **2:** 938 (Nov. 27) 1948.

[5] Malmros, H.; Wilander, O., and Herner, B.: Inoculation Hepatitis, Brit. M. J. **2:** 936 (Nov. 27) 1948.

[6] Mendelssohn, K., and Witts, L. J.: Transmission of Infection During Withdrawal of Blood, Brit. M. J. **1:** 625 (May 5) 1945.

## THE JOSEPH GOLDBERGER AWARD IN NUTRITION

Until recently progress had been slow in efforts to define chemically the active anti-pernicious-anemia principle of liver. The absence of a suitable experimental analogue to pernicious anemia has made it necessary to test various chemical fractions by laborious clinical assay. Now another assay has been devised, a microbiologic technic, for anti-pernicious-anemia potency. This method is yet in the developmental stage. Few clinical investigators have had the patience to study the activity in the human being of fraction after fraction from liver over the long interval necessary for the successful concentration of the active principle.

Within a year after Minot and Murphy's report[1] of the successful treatment of pernicious anemia with a diet containing large quantities of liver, Dr. Randolph West[2] embarked on an attempt to concentrate the active principle from liver. Dr. West's continuous interest in this problem is attested by repeated publications with various collaborators during the intervening twenty-one years. These studies led to the characterization of an active, but impure, concentrate as a peptide in some respects resembling an albumose, and free of glucosamine.[3] The more purified of these products was active in quantities of 20 to 25 mg.

Finally, in April 1948, this persistent investigation by West culminated in the brief announcement[4] that doses as small as 6 micrograms of the newly isolated vitamin $B_{12}$[5] exhibited striking hemopoietic activity in pernicious anemia. These results have been confirmed by several groups of workers. This new vitamin is a potent hemopoietic agent in the three macrocytic anemias associated with megaloblastic arrest of the marrow–pernicious anemia, sprue and nutritional macrocytic anemia. Of further great importance is the evidence[6] that vitamin $B_{12}$ is effective in alleviating the reversible neurologic changes of combined system disease. The demonstration of the clinical activity of this new vitamin in human diseases and its identification with the anti-pernicious-anemia factor in liver extract is a major achievement in clinical nutrition and is one which the Award Committee of the American Medical Association regards as of such preeminent accomplishment that Dr. West has been selected to receive the first Joseph Goldberger Award in Clinical Nutrition.

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[1] Minot, G. R., and Murphy, W. P.: Treatment of Pernicious Anemia by a Special Diet, J. A. M. A. **87:** 470 (Aug. 14) 1926.

[2] West, R.: On Feeding Certain Liver Constituents in Pernicious Anemia, Proc. Soc. Exper. Biol. & Med. **24:** 665 (April 20) 1927. West, R., and Nichols, E. G.: Liver Fractions in Pernicious Anemia, J. A. M. A. **91:** 867 (Sept. 22) 1928.

[3] Dakin, H. D., and West, R.: Observations on the Chemical Nature of a Hematopoietic Substance Occurring in Liver, J. Biol. Chem. **109:** 489 (May) 1935. Dakin, H. D.; Ungley, C. C., and West, R.: Further Observations on the Chemical Nature of a Hemopoietic Substance Occurring in Liver, ibid. **115:** 771 (Oct.) 1936.

[4] West, R.: Activity of Vitamin $B_{12}$ in Addisonian Pernicious Anemia, Science **107:** 398 (April 16) 1948.

[5] Rickes, E. L.; Brink, N. G.; Koniuszy, F. R.; Wood, T. R., and Folkers, K.: Crystalline Vitamin $B_{12}$, Science **107:** 396 (April 16) 1948.

## Current Comment

### GOVERNMENT MEDICINE AND THE NAVAJO-HOPI INDIANS

Last week The Journal published a special report on medical conditions among the Navajo-Hopi Indians, made by a group of physicians sent by the Department of the Interior as representatives of the American Medical Association. These physicians spent two weeks traveling over the Indian reservations inspecting and studying health conditions. The medical care of these 64,000 Indians, roaming over some 18,000,000 acres of eroded land, appears to be most unsatisfactory. The statistical data available regarding tuberculosis indicated that the mortality of this disease among the Indians is about ten times that of the general population. Other serious medical problems are the upsurging venereal diseases, particularly syphilis, preventable killing diarrheas and trachoma which might be eliminated by an intensive treatment campaign. There are also many surgical, orthopedic and dental problems. The report of the physicians stressed the common preventable, communicable and curable diseases because, the report said, they best revealed the inadequacy of past and present medical services. Their numerous recommendations made to improve the health of the Navajo-Hopi Indians amount in brief to a complete revamping of the medical system in that area. The committee recommended particularly that the Indian Medical Service be free from the handicaps inherited under the Civil Service Act, including salary and age limitations. Good physicians cannot afford to serve without initiative and freedom of action. Thus, there is already, in our country, a striking example of the failure of government management of medical affairs.

### DRIVE TO OBTAIN PHYSICIANS FOR ARMED FORCES RECOMMENDED

A nationwide drive for volunteers to relieve the critical shortage of physicians and dentists in the armed forces was recommended February 5 to Secretary of Defense James Forrestal. The project was proposed by the recently appointed Armed Forces Medical Advisory Committee. It would be directed mainly toward approximately 15,000 young men who were deferred from service in order to complete their professional training—many at government expense. The Committee recommended that an appeal be made for volunteers from among these men to avoid the necessity of asking Congress for additional legislation to meet critical needs of the armed forces. The program will be conducted by the Medical Advisory Committee with the cooperation of the medical and dental professions and the medical services of the Army, Navy and Air Force. It is estimated that by the end of July there will be a shortage of medical officers in the armed services of about 1,600 physicians and about 1,160 dentists and that by the end of the year the combined shortage will total approximately 2,200 physicians and 1,400 dentists. The medical profession should respond to this appeal with the spirit that has been traditional in American medicine. Thus the medical profession will show that it merits the freedom that it now seeks to maintain.

### UNDECYLENIC ACID AND PSORIASIS

Elsewhere in The Journal (p. 444) is an article on the use of undecylenic acid in the treatment of ringworm, psoriasis and neurodermatitis. Many treatments have been proposed for psoriasis but none have proved generally effective. The skin manifestations are controlled in many instances, but usually the sufferer returns to the physician complaining of recurrence of the disease. Seasonal variations, response to sunlight, the use of potent drugs for internal use or application to the skin, and other factors have provided, at times, more confusion than knowledge concerning the cause and treatment of psoriasis. Thus, there is not today one drug or method of treatment that can be regarded as specific for the control, let alone cure, of this affliction. For this reason, if no other, a technic or remedy that offers promise is worthy of study to determine its true usefulness. If it proves to be a worth while addition to the medical armamentarium, its usefulness will become established promptly. If, however, it eventually proves disappointing, the failure should be revealed in its true light. The use of undecylenic acid in the treatment of psoriasis and neurodermatitis offers an interesting approach to the control of these problems. The method is still in the stage of experimental investigation and must be so regarded until further evidence is accumulated. Under no circumstances should it be accepted at this time as the most effective and only treatment.

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[6] Berk, L.; Denny-Brown, D.; Finland, M., and Castle, W. B.: Effectiveness of Vitamin $B_{12}$ in Combined System Disease, New England J. Med. **239**: 328 (Aug. 26) 1948.

# ORGANIZATION SECTION

## Official Notes

### TOWN MEETING BROADCAST ON COMPULSORY SICKNESS INSURANCE

Dr. Morris Fishbein, Chicago, Editor of THE JOURNAL, and U. S. Senator H. Alexander Smith, Princeton, N. J., will speak against a national compulsory sickness insurance program for the American people on America's Town Meeting of the Air, on Tuesday night, Feb. 22, 1949. The program will be broadcast and televised from 8:30 to 9:30 p. m., Eastern standard time, over American Broadcasting Company networks. Senator Smith, a Republican, is a member of the Senate Labor and Public Welfare Committee and former chairman of the Senate Sub-Committee on Health. Federal Security Administrator Oscar Ewing and Walter Reuther, Detroit, president of the United Automobile Workers, C. I. O., will speak in favor of a national compulsory sickness program. The forum will be moderated by George V. Denny Jr., president of Town Hall, New York.

### APPOINTMENT TO BUREAU OF HEALTH EDUCATION

Dr. Donald A. Dukelow, Minneapolis, director of public health education for the Minnesota Department of Health, 1937-1945, has accepted an appointment effective in March to become medical consultant on health and fitness in the Bureau of Health Education of the American Medical Association. He will deal particularly with school health programs. For the past three years Dr. Dukelow has been director of health and medical care division, Community Chest and the Council of Hennepin County.

## Washington Letter

*(From a Special Correspondent)*

Feb. 7, 1949.

### Sickness Insurance "Debated" in *Congressional Record*

Although it probably will be weeks, and more likely months, before the issue of compulsory sickness insurance reaches the stage of open debate on House or Senate floors, the daily *Congressional Record* is serving as a pro and con forum on the question in the interim. In the issue of January 18, for example, Senator Pepper—one of the most articulate proponents of Murray-Wagner-Dingell legislation—had published in the *Record* a guest column which he had written for the Alexandria (Va.) *Gazette*.

"None of us is in favor of socialized medicine," says the Pepper article. "All of us want to see our national health system continue to expand as an integral part of our system of free enterprise with the assistance and encouragement of our federal state and local governments. We will see that this is done."

The *Congressional Record* of January 13 carried items inserted by Representatives Smith (Ohio) and Stefan (Neb.), the former warning against the type of insurance proposed by the Federal Security Agency and the latter giving a first hand account of the workings of Britain's nationalized health service. They were, respectively, the text of a radio broadcast by a San Francisco attorney, Aaron M. Sargent, entitled "Socialized Medicine," and an article entitled "State Medicine in Practice" which was originally published in the *Christian Science Monitor*.

### Senator Hill Considering a Substitute National Health Bill

Although he is classed as a Democratic "regular," who generally is in agreement with Truman administration policies, Senator Lister Hill (Democrat, Alabama) has let it become known that he is favorably impressed by a national health plan designed to obviate compulsory sickness insurance. The plan was submitted to him by Dr. Gilson Colby Engel, president of the Medical Society of the State of Pennsylvania. Its provisions, in brief, are: (1) establishment of a federal Department of Health, headed by a doctor of medicine who would serve as a Secretary in the President's Cabinet; (2) removal of partisan politics from appointments to the department; (3) consolidation of the military medical services; (4) promotion of health education programs in cooperation with state and local medical societies; (5) federal support of medical research; (6) financial aid to medical students on condition that they agree to practice at least five years in rural areas; (7) financial assistance to student nurses; (8) federal support of Blue Cross and Blue Shield plans for the ultimate benefit of the medically indigent; (9) expansion of hospitals and diagnostic centers in rural areas, and (10) expansion of mental hygiene clinics.

The fact that Senator Hill is giving serious attention to the Engel plan derives particular significance from his strategic—and unique—position as a member of both the Labor and Public Welfare Committee and the Appropriations Committee. The former is in charge of the Murray-Wagner-Dingell bill, along with virtually all other health and medical bills, and the latter committee is the one that passes on all expenditures. Furthermore, Senator Hill has just been added to the subcommittee that will handle the 1949-1950 budget of the Federal Security Agency, "parent" body of U. S. Public Health Service, and which would administer any compulsory insurance plan that might be enacted. Alabama's senior senator is the only member who sits on both the Labor-Public Welfare and Appropriations Committees. On January 24 he introduced S. 614, which provides for the most extensive amendment of the Hill-Burton Hospital Survey and Construction Act since its enactment, increasing the annual federal contribution to $150,000,000 and otherwise enlarging assistance to the states and to private nonprofit institutions. On January 27 he went to Birmingham, Ala., to participate in dedication of the first major health center to be completed under provisions of the Hill-Burton Act.

### 32 New Members of Study Sections at National Institutes of Health

Thirty-two medical and biologic scientists have joined seventeen research study sections of the National Institutes of Health, replacing members whose terms expired Dec. 31, 1948. The appointees are as follows: antibiotics, Drs. Arthur P. Richardson (Emory) and Harry H. Gordon (Colorado); bacteriology, Drs. Morris F. Shaffer (Tulane) and Charles E. Smith (Stanford); biochemistry and nutrition,. Drs. William J. Darby (Vanderbilt) and Wendell H. Griffith (Texas); cardiovascular, Drs. John K. Lewis (Stanford), George E. Burch (Tulane) and W. C. Stadie (Pennsylvania); dental, Drs. Allan G. Brodie (Illinois) and Thomas J. Hill (Western Reserve); hematology, Dr. Louis K. Diamond (Children's Hospital, Boston); malaria Drs. John M. Henderson (Columbia) and George H. Boyd (Georgia); metabolism and endocrinology, Drs. Arthur Grollman (Southwestern) and Samuel Soskin (Michael Reese, Chicago); pathology, Drs. Douglas H. Sprunt (Tennessee) and Russell L. Holman (Louisiana State); pharmacology, Drs. Carl A. Dragstedt (Northwestern) and Harvey B. Haag (Medical College of Virginia); physiology, Dr. Howard B. Lewis (Michigan); public health, Drs. Carl Buck (Michigan) and Donal Sheehan (New York Univ.); radiobiology, Drs. Simeon T. Cantril (Swedish Hospital, Seattle) and Robert R. Newell (Stanford); sanitation, Drs. Rolf Eliassen (New York Univ.) and Harold B. Gotaas (California); syphilis, Dr. Malcolm H. Merrill (California State Dept. of Public Health); tropical diseases, Drs. Asa C. Chandler (Rice Institute) and P. Morales Otero (Univ. of Puerto Rico), and virus and rickettsial, Drs. John H. Dingle (Western Reserve) and William F. Friedewald (Emory).

# Medical Legislation

## STATE LEGISLATION

### Arkansas

**Bills Introduced.**—H. 96 proposes to make it **unlawful to sell isonipecaine, barbital and benzedrine** except in drug stores licensed by the State Board of Pharmacy and except upon written prescriptions by persons licensed in Arkansas to practice medicine and surgery, osteopathy, dentistry and veterinary medicine. H. 159, to amend the basic science act, proposes to **exempt** therefrom **any person who was licensed to practice** the healing art in the state of Arkansas prior to March 22, 1918.

***Bills Passed.***—*H. C. R. 4 passed the Senate January 25.* It memorializes Congress not to enact any proposed legislation the effect of which will be to bring the **practice of medicine** in this country **under federal direction and control**, either through a form of compulsory insurance or any system of medical care designed for national bureaucratic control.

### California

**Bills Introduced.**—A. 764, to amend the Labor Code, proposes that the articles thereof relating to **employment of aliens** shall not apply to the employment by a county of an intern or resident physician for services in the county hospital under an exchange arrangement with medical facilities in foreign countries. A. 766, to amend the business and professions code, proposes to authorize the employment of two **investigators for the Board of Medical Examiners.** A. 863 proposes the enactment of a law providing a system of **prepaid health service.** S. 277, to amend the business and professions code, proposes the enactment of a **physical therapists practice act** and authorizes the Board of Medical Examiners to grant registration to such practitioners. Physical therapy is defined to mean "the treatment of any bodily or mental condition of any person by the use of the physical, chemical, and other properties of heat, light, water, electricity, massage, and active and passive exercise. The use of roentgen rays and radium, for diagnostic and therapeutic purposes, and the use of electricity for surgical purposes, including cauterization, are not authorized under the 'physical therapy' " as used in this proposal. S. 329 proposes the creation of a **Board of Naturopathic Examiners** with power to issue certificates designated "Naturopathic physician's certificate." This certificate would authorize the holder to diagnose and treat all human ailments and abnormalities by the use of such forces and substances as light, air, water, clay, heat, rest, diet, herbs, electricity, massage, Swedish movements, suggestive therapeutics, magnetism, physical and mental culture. S. 343, to amend the business and professions code, proposes the creation of a California **State Hearing Aid Board** to issue certificates to hearing aid specialists, defined as meaning persons "certified and licensed to make fittings of hearing aids for persons suffering from deafness and to sell hearing aids and hearing aid supplies at retail."

### Connecticut

**Bills Introduced.**—H. 138, to amend the law relating to privileged communications, proposes that no person authorized to practice medicine or surgery shall be compelled **to disclose in any legal proceeding any information** which he may have acquired in attending any patient in his professional capacity, without the consent of said patient, which information was necessary to enable him to prescribe for such patient as a physician, or to do any act for him as a surgeon. H. 161 proposes to require each physician to report immediately to the State Department of Health, in writing, the name, age and address of each person known to him to be subject to **recurrent attacks of epilepsy** in any of its forms or to recurrent periods of unconsciousness uncontrolled by medical treatment. H. 210 proposes the creation of a Board of **Examiners for X-Ray Technicians** with authority to issue to successful applicants a certificate of registration as an x-ray technician, which shall constitute a license to practice x-ray technology as a technician under the direct supervision of a licensed doctor of medicine, dentist or osteopathic physician. The practice of x-ray technology is defined by the proposal as the performance for compensation received or charged of services in the diagnostic or therapeutic application of x-rays or other ionizing radiations in the field of medicine. S. 130 proposes to authorize any local health officer of a town, city or borough to grant licenses for **the practice of massage** within his jurisdiction and defines massage as being "any process or action of conjoint motion and pressure applied by hand, such as rubbing, stroking, kneading, tapping or other similar manipulation, with or without the application of cream, lotions, or linaments, or the use of hand vibrators or rollers to any part of the human body for purpose of relieving pains, aches, stiffness, or soreness of muscles or for the purpose of stimulating blood circulation or reducing conditions of obesity, including the use of vapor treatments and any and all other manual means such as physical exercises for the conditioning of the human body."

### Georgia

**Bill Introduced.**—H. 9 proproses to direct the State Department of Public Welfare to formulate and put into effect plans and programs and facilities for the care and treatment of children residing in Georgia **suffering from cerebral palsy** and all other handicapping conditions.

### Indiana

**Bills Introduced.**—H. 64 proposes that in any action to determine who is **the father** of any child, the court, on motion of either party, shall order the mother, her child and the defendant to submit to one or more blood grouping tests by a duly qualified physician, to determine whether or not the defendant can be excluded as being the father of the child, and the results of such tests may be received in evidence but only in cases where definite exclusion is established. S. 32 proposes to make it **unlawful to practice psychiatry** or to act as an alienist or to treat psychiatrically or subject to the influence of psychiatric examination and treatment any person without first having received from a recognized medical college the degree of Doctor of Medicine and having further received from the Board of Medical Registration and Examination of Indiana a certificate authorizing the practice of medicine.

### Iowa

**Bill Introduced.**—S. 181 proposes to require all physicians to report immediately to the local health officer in writing the name, sex, date of birth and address of every person diagnosed as having **epilepsy or similar disability** characterized as "momentary or prolonged lapses of consciousness or control which is, or may become chronic."

### Maine

**Bill Introduced.**—H. 476 proposes the creation of a board of trustees of the **state fund for alcoholics** and directs the board to study the problem of alcoholism, including methods and facilities available for the care, custody, detention, treatment, employment and rehabilitation of persons addicted to the intemperate use of spirituous or intoxicating liquors.

### Massachusetts

**Bill Introduced.**—S. 396 proposes to repeal all laws requiring **vaccination.**

### Michigan

**Bill Introduced.**—S. 58 proposes a bill to provide **central records and business accounting,** to coordinate the issuance of licenses and to achieve maximum economies in the utilization of space, personnel and records used by the several licensing and examining boards, including the Board of Examiners of Basic Sciences, Board of Chiropractic Examiners, the Board of Registration in Medicine and the Board of Osteopathic Registration and Examination.

### Minnesota

**Bills Introduced.**—H. 156 proposes regulations for the incorporation of **voluntary nonprofit medical and hospital care associations.** H. 183 proposes to **authorize persons to dispose of their body** in whole or in part by will to a teaching institution, university, college, state board of public health, or legally licensed hospital, either for use as such institution, university, college or hospital may see fit, or for such use as may be expressly designated in the will.

### Montana

**Bills Introduced.**—H. 115 proposes the creation of a **State Board of Practical Nurses** and defines the practice of practical nurses as follows: "A person practices practical nursing within the meaning this act when, for compensation or personal profit, she or he performs such duties as are required in the physical care of convalescent or chronically ill or aged or infirm patients or those suffering from minor ailments in hospital or home under the supervision and direction of qualified physicians or who assist registered nurses in the care of acutely ill patients in hospital and home under the direction of qualified physicians. S. 17 proposes to include 'isonipecaine, amidone, isoamidone, ketobemidone" within the definition of "**narcotic drugs.**"

### New York

**Bills Introduced.**—A. Res. 27 proposes the creation of a joint legislative committee to make a survey and study of the physical, social and educational **problems resulting from rheumatic fever.** A. 228 and S. 310, to amend the pharmacy law, propose to make it **an act of unprofessional conduct** for a pharmacist to enter into an agreement with a physician, dentist, podiatrist or veterinarian for the payment or acceptance of compensation in any form for the recommending of the professional services of either party. A. 275 and S. 270, to amend the education law, propose to direct the board of education of each city and each school district maintaining public schools to provide **adequate health services for pupils** attending such schools. Such service shall include, among other things, facilities to afford adequate physical examinations, including x-raying of the chest of all pupils annually. A. 400 and S. 364 propose to direct the state university trustees to establish a **school of medicine** in the county of the Bronx. A. 429, to amend the education law, proposes to make **the use of x-rays** for diagnostic or therapeutic purposes the practice of medicine and to regulate the use of such practices. S. 64 proposes to make it **unlawful** for any public or semipublic hospital, supported wholly or partly by public funds, to **refuse to permit any physician or surgeon** duly licensed by the state to diagnose, treat or operate on any patient in any such hospital or to refuse admission to any such hospital of any patient who has been recommended to be sent to or who has been sent to any such hospital by any such physician or surgeon. A. 496 and S. 412 propose the creation of a state commission to initiate, formulate and execute a master plan for the promotion **of mental health programs.** A. 558, to amend the education law, proposes to make it the duty of each medical inspector having jurisdiction over any public school in the state to examine each pupil attending such school for **symptoms of tuberculosis** at least once each year. A. 590, to amend the mental hygiene law, proposes the establishment of minimum standards for the staffs needed for the operation of **state mental hospitals.** A. 661, to amend the mental hygiene law, proposes to eliminate from the existing law the requirement that the **directors of the homeopathic hospitals** for the mentally ill shall be homeopathic physicians and that preference in such institutions shall be given to homeopathic physicians. S. 389 proposes payment of **subsidies to student nurses.** S. 497 and A. 571, to amend the mental hygiene law, propose the creation within the department of mental hygiene of a **bureau of alcoholic rehabilitation** to establish and equip hospitals, clinics, custodial institutions or farms in connection either with existing hospitals or other institutions with the facilities for the diagnosis, classification, hospitalization, confinement and treatment of persons who are found to be alcoholics.

### North Dakota

**Bills Introduced.**—H. 122 proposes to permit applicants for a license to practice medicine and surgery to take such **examination** in any one of the following **foreign languages:** Scandinavian, German, Czechoslavakian, Polish and French. The proposal would further provide that lack of American citizenship and residence shall be no bar for license to practice medicine in the state. S. 127 proposes regulations for the **establishment and regulation of rural hospitals,** community clinics, health stations, first aid stations and the training of interns, nurses and other health workers, together with facilitating the placement and training of physicians and surgeons in the state. S. 144 proposes that the **superintendent of the state hospital** must be a competent business executive rather than a graduate of a reputable medical college and a physician of acknowledged skill and ability.

### Ohio

**Bill Introduced.**—H. 21 proposes that in an action or proceeding where **the physical condition of a party** is in issue the court may, on application of an adverse party, order said party to submit to a physical examination by a licensed physician approved by the court, on condition that said physician make a written report of his examination and furnish the party examined with a signed copy of such report and that such physician file the original report with the court in said action or proceeding, unless the party examined shall in writing waive the right to have said original report filed.

### Oregon

**Bills Introduced.**—S. 40 proposes an act for the **licensing of practical nurses** and defines practical nursing as "the performing by any person for compensation or personal profit services in the nursing or care of the sick, not requiring specialized education, knowledge or skill equivalent to that of a graduate or registered nurse. S. 54, to amend the income tax law, proposes to authorize **the deduction of expenses paid** during the taxable year, not compensated for by insurance or otherwise, for medical care of the taxpayer, his spouse, or a dependent, to the extent that such expenses exceed 5 per cent of the adjusted gross income. The term "medical care" in the proposal would include amounts paid for the diagnosis, cure, mitigation, treatment or prevention of disease or for the purpose of affecting any structure or function of the body (including amounts paid for accident or health insurance).

### Pennsylvania

**Bills Introduced.**—H. 18 proposes regulations for the licensing and **registration of registered and practical nurses.** The practice of nursing as a registered nurse is defined as the performance for compensation or personal profit of any professional service requiring the application of principles of nursing based on biologic, physical and social sciences such as responsible supervision of a patient requiring skill in observation of symptoms and reactions and the accurate recording of the facts and carrying out of treatments and medications as prescribed by a licensed physician and the application of such nursing procedures as involve understanding of cause and effect in order to safeguard life and health of a patient and others. The practice of nursing as a licensed practical nurse or licensed attendant is the performance of such duties as are required in the physical care of a patient or the carrying out of medical orders as prescribed by a licensed physician requiring an understanding of nursing but not requiring all the professional service or qualifications set forth in the definition of nursing as a licensed or registered nurse. H. 39 proposes that in any **proceeding to establish paternity** the court on motion of the defendant shall order the mother, her child and the defendant to submit to one or more blood grouping tests by a duly qualified physician to determine whether or not the defendant can be excluded as being the father of the child and the results of such tests may be received in evidence but only in cases where definite exclusion of the defendant is established. S. 83 proposes the creation of a committee to make a thorough investigation of the methods used by the **various state examining boards** and commissions concerned with the licensing of trades, occupations and professions with special reference to their conduct and grading of examinations and the furnishing of information with respect thereto to interested parties and make a full report of the result of such investigation to the General Assembly of the Commonwealth at the next regular meeting or special session of the General Assembly. S. 86 proposes the establishment of a board of trustees of the **State Fund for Inebriates** to study the problem of alcoholism, including methods and facilities available for the care, custody, detention, treatment, employment and rehabilitation of persons addicted to the intemperate use of spirituous or intoxicating liquors. S. 98 proposes that no hospital receiving any appropriation from the state shall give **any discount or rebate** to any hospital plan or medical service corporation, association or society for any service rendered or room furnished by it to any member of such corporation, association or society.

### South Carolina

**Bill Introduced.**—S. 45 proposes that before a **marriage license** may be issued each of the contracting parties must have filed with the probate judge a certificate signed by a duly licensed physician of the state certifying that within thirty days the physician examined such party and found him or her to be of sound mind and free from venereal disease.

### South Dakota

**Bill Introduced.**—H. 37 proposes regulations for the **licensing of osteopathic physicians.** The license would permit the holder to practice osteopathic medicine, surgery or obstetrics without limitation in any of their branches in the state.

### Texas

**Bills Introduced.**—S. 63 proposes the enactment of a basic science act which would require any person desiring to take an examination for a license to practice any branch of the healing art to first pass an **examination in the basic sciences** of anatomy, physiology, chemistry, bacteriology, pathology, and hygiene and public health. S. 78 proposes to include amphetamine, commonly known as "benzedrine," within the provisions of **the narcotic drug act.** S. 119 proposes to make it unlawful to sell **isonipecaine, barbital or benzedrine** except by drug stores licensed by the state board of pharmacy and upon written prescription of persons licensed in Texas to practice medicine and surgery, osteopathy, dentistry and veterinary medicine. S. 122 proposes the creation of a **state board of naturopathic examiners** and defines naturopathy as "that philosophy and system of the healing art embracing prevention, diagnosis, and the cure and treatment of human ills, diseases, traumas, deformities, and functions by the use of the several properties of air, light, heat, cold, water, mechanics, electricity, manipulation and psychology, together with the use of such substances, largely nutritional, of plant, animal or mineral origin as are naturally found in and required by the body, including drugs and major surgery."

### Utah

**Bills Introduced.**—H. 22, to amend the **narcotic drug act,** proposes to include "isonipecaine, amidone, isoamidone, and keto-bemidone" within the definition of "narcotic drugs." S. 135 proposes the enactment of a basic science law and states the **basic sciences** to be anatomy, physiology, pathology, bacteriology and chemistry.

### Vermont

**Bills Introduced.**—H. 70 proposes that a municipality may appropriate a sum of money to secure a **licensed physician or a registered nurse,** or both, and may join with adjacent municipalities in employing such physician or nurse, or both. H. 77 proposes an act to require the licensing, inspection and regulation of **hospitals and related institutions.** The licensing agency would be the hospital survey and construction commission and an advisory hospital licensing council would be appointed. "Hospital" is defined as a place devoted primarily to the maintenance and operation of facilities for the diagnosis, treatment or care for not less than twenty-four hours in any week of two or more unrelated individuals suffering from illness, disease, injury or deformity or a place devoted primarily to providing for not less than twenty-four hours in any week of obstetrical or other medical or nursing care for two or more unrelated individuals. The proposal is broad enough to include hospitals operated by the state, county, town, municipality or other political subdivision.

### Wisconsin

**Bills Introduced.**—A. 11 proposes regulations creating a **director of nursing education** and also proposes regulations for the licensing of practical nurses. A. 12 proposes the creation of a **state laboratory of hygiene.** This laboratory would be required to examine the following specimens without charge when submitted in proper containers by licensed physicians, veterinarians, health officers, and health commisisoners: material collected from patients afflicted with tuberculosis or from persons suspected of being afflicted with tuberculosis; blood from suspected typhoid cases and other enteric infections; swabs from persons suspected of having diphtheria, septic sore throat or other communicable diseases involving the upper respiratory tract and for the release from quarantine of persons who have been afflicted with these diseases; material from men or animals suspected of suffering from rabies, anthrax and glanders; examinations pertaining to industrial health hazards and such other examinations as may be necessary for the control and prevention of those diseases which cause a public problem.

## Coming Medical Meetings

Alaska Territorial Medical Association, Juneau, March 3-5. Dr. William P. Blanton, Box 2569, Juneau, Secretary.

American Academy of General Practice, Cincinnati, Netherlands Plaza Hotel, March 7-9. Mr. Mac F. Cahal, 231 W. 47th St., Kansas City, Mo., Executive Secretary.

American Association for Thoracic Surgery, New Orleans, March 29-31. Dr. Brian Blades, George Washington University Hospital, Washington, D. C., Secretary.

American College of Physicians, New York, March 28-April 1. Dr. George Morris Piersol, 4200 Pine St., Philadelphia 4, Secretary General.

American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, New York, Hotel Waldorf-Astoria, March 4. Dr. Norman N. Smith, 291 Whitney Ave., New Haven 11, Conn., Secretary.

Central Surgical Association, Cleveland, Hotel Cleveland, February 18-19. Dr. Walter G. Maddock, 250 E. Superior St., Chicago 11, Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, Palmer House, March 1-4. Dr. H. Kenneth Scatliff, 30 N. Michigan Ave., Chicago 2, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, March 14-17. Miss Thelma Webb, 1133 Medical Arts Bldg., Dallas, Executive Secretary.

Michigan Postgraduate Clinical Institute, Detroit, Book-Cadillac Hotel, March 23-25. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing 8, Mich., Secretary.

Missouri State Medical Association, Kansas City, March 27-30. Mr. T. R. O'Brien, 634 N. Grand Blvd., St. Louis 3, Secretary.

New Orleans Graduate Medical Assembly, New Orleans, Municipal Auditorium, March 7-10. Dr. W. D. Beacham, 1430 Tulane Ave., New Orleans, Secretary.

Postgradute Assembly in Endocrinology, Association for the Study of Internal Secretions, Oklahoma City, Feb. 21-26. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary

Southwest Allergy Forum, El Paso, Texas, Hotel Paso del Norte, April 4-5. Dr. O. E. Egbert, First National Bank Bldg., El Paso, Secretary.

# GOVERNMENT SERVICES

## ARMY

### COURSE IN BASIC SCIENCES FOR MEDICAL OFFICERS

Sixty-four of the nation's outstanding clinicians and medical investigators comprise the visiting faculty for the annual course in basic science recently opened at the Army Medical Research and Graduate School, Washington, D. C., which course is being pursued by a group of medical officers selected from Army installations throughout the country. The twenty-one week course is divided into three categories: (1) the utilization and metabolism by the total organism of the essential substances, water, electrolytes, carbohydrates, proteins and other accessory substances; (2) the subjects advanced by category 1 are elaborated on in category 2 in discussions concerning aberrations by the body in handling the substances when affected by such modifying agents as bacteria, heat and cold, heredity, rate of growth and development, the effect of radiation and drugs, etc., and (3) review of most of the basic subjects.

On opening the course, the welcoming address was made by Brigadier General George A. Armstrong, Deputy Surgeon General. Dr. Irvine H. Page of Cleveland spoke on "The Functions and Purposes of Basic Science Instruction," and Dr. Herbert M. Evans of the University of California on "Saving Your Own Life." Colonel Walter H. Moursund Jr. is director of the course. Commander Rufus L. Holt, Commandant, Army Medical Center, presided

### MEDICAL OFFICERS TEACH IN CIVILIAN SCHOOLS

Twenty-three medical corps officers, two medical service corps officers, two dental corps officers and one veterinary officer are now serving as part time instructors on the faculties of civilian medical schools. This is indicative, the Surgeon General says, of the close relationship growing between Army medicine and civilian institutions. General Bliss emphasized the mutual advantages to Army and civilian medicine derived from the interchange of medical knowledge which is accomplished by such a cooperative program. The medical officers who serve on the faculties of civilians institutions do so voluntarily without remuneration and, in many cases, on their own time. The work of these officers is not to be confused with the regular assignment of medical officers as professors of military science and tactics at universities where medical department R. O. T. C. units exist.

### CIVILIAN OFFICERS TO ATTEND COURSES

The following Medical Corps officers, in addition to those previously reported, have been selected to attend courses in civilian schools and hospitals:

| *Name* | *Institution* | *Course* |
|---|---|---|
| Simpson, John W., Lieut. Col. | Association for the Study of Internal Secretions, Oklahoma City, Feb. 21-26 | Endocrinology |
| Kowallek, Paul J, Jr., Capt. | Huron Road Hospital, East Cleveland, Ohio | General surgery |
| Marchese, Vincent, Capt. | Gouverneur Hospital, Gouverneur Slip, New York | Surgery |
| Pfeil, Edgar T., Jr., Capt. | University Hospital, Baltimore | Neurosurgery |
| Buck, Charles E., First Lieut. | Indiana University Medical Center, Indianapolis | Pathology |
| Creditor, Morton C., First Lieut. | Bellevue Hospital, New York | Internal medicine |
| Daniels, Roswell G., First Lieut. | Brooklyn Hospital, Brooklyn | Intern training |
| DeLuca, Frank R., First Lieut. | Harlem Hospital, New York | General surgery |
| Epstein, Franklin H., First Lieut. | Grace-New Haven Hospital, New Haven, Conn. | Medicine |
| Graves, Stuart, Jr., First Lieut. | St. Luke's Hospital, New York | Medicine |
| Goldwyn, Arthur, First Lieut.. | Morrisania City Hospital, The Bronx, N. Y. | Pediatrics |
| Koefoot, Robert E., First Lieut. | Charles T. Miller Hospital, St. Paul | Surgery |

### MONTHLY MEDICAL MEETING

At the Surgeon General's regular monthly medical meeting at Walter Reed Hospital, January 24, Dr. Owen H. Wangensteen, professor of surgery, University of Minnesota, Minneapolis, spoke on "Studies in the Etiology and Surgical Management of Peptic Ulcer," and Major Edwin J. Pulaski, M.C., Surgical Research Laboratory, Brooke Army Medical Center, Fort Sam Houston, Texas, on "Control of Peritoneal Infection in Gastro-Intestinal Tract Surgery."

## NAVY

### NEW REGULAR OFFICERS

The following doctors have been nominated for appointment to the Regular Navy Medical Corps, and on acceptaance they will report for their first active duty as indicated:

| Name | Residence | Institution |
|---|---|---|
| Skow, George D., Comdr. | Racine, Wis. | Naval Training Center, Great Lakes, Ill. |
| Ellis, Fred A., Lieut. Comdr. | Seattle | Naval Air Station, Seattle |
| Smith, Alexander C., Lieut. (jg) | Manhasset, N.Y. | Bellevue Hospital, New York |
| Warren, Robert, Lieut. (jg) | Oberlin, Ohio | Huron Road Hospital, East Cleveland, Ohio |

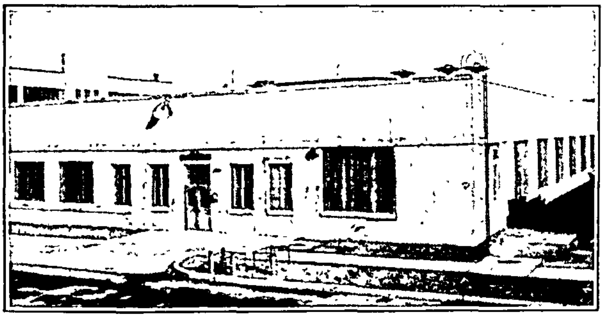
### MEETING OF CONSULTANTS

One of the most successful of the conferences of consultants to the Bureau of Medicine and Surgery was held at the Naval Medical Center, Bethesda, Md., January 28-29. Forty-three of the nation's civilian doctors, including the President and the President-Elect of the American Medical Association, attended the first joint meeting of the honorary and reserve consultants to the Medical Department of the Navy. A highlight of the meeting was an illustrated lecture by Commander J. M. Amberson, M.C., officer in charge of the Department of Tropical Medicine at the Naval Medical School, Bethesda, who reported on the Navy's recent medical mission in Africa for the study of tropical diseases and the collection of specimens for further study.

### COEDUCATIONAL HOSPITAL CORPS SCHOOL

The Surgeon General of the Navy, Rear Admiral Clifford A. Swanson, announces that the hospital corps schools at Great Lakes, Ill., and San Diego, Calif., henceforth will function as coeducational institutions for the first time. A selected group of twenty-eight Waves have been assigned to the schools and will pursue the same curriculum as the male hospital corpsmen, a twelve week course in the fundamentals of nursing, laboratory technic, ward management, materia medica, first aid and pharmacy and chemistry. During World War II, the Waves attended a separate training school to prepare for duty as hospital corpsmen. On completion of the courses, they will be assigned to Naval hospitals for further instruction and various duties in Medical Department hospitals.

## DEDICATE AERONAUTICAL MEDICAL EQUIPMENT LABORATORY



Navy Aeronautical Medical Equipment Laboratory.

This laboratory, originated in January 1942, is one of the newer laboratories of the Naval Air Experimental station and the only one of its kind in the Navy. Its facilities are comprised in two divisions: (1) the Human Engineering Division, which deals with the physiologic phases of aeronautic medicine, and (2) the Development, which deals with the study of scientific engineering problems relating to safety devices. The personnel consists now of 14 from the Navy and 44 civilians, the physical facilities include a clothing laboratory, an all-weather room, cold rooms, oxygen laboratory, physiology laboratories, altitude chambers, an ejection seat test tower, a screen room for electrical instrumentation and a dark room for vision studies. The Human Engineering Division, among other things, prepares recommendations from a physiologic point of view on technical investigations carried on in various laboratories, is responsible for physiologic testing of aviators' oxygen breathing equipment, clothing, safety and survival equipment, and for the indoctrination of personnel in the effects of low barometric pressures, extreme pressures, accelerations, use of oxygen-breathing equipment and electrically heated suits. The experience of various members of this division covers biochemistry, medical science, physics, physiology, instrumentation and piloting of aircraft.

At the dedication of the new laboratory, the principal address was given by Rear Admiral Clifford A. Swanson, the Surgeon General; other speakers were Rear Admiral F. W. Pennoyer Jr., Commander of the Naval Air Material Center; Commander P. E. Burr, Director of the Naval Air Experimental Station; Captain J. R. Poppen, Superintendent of the Aeronautical Equipment Laboratory; Rear Admiral B. Groesbeck, Assistant Chief, Bureau of Medicine and Surgery, and Colonel Robert E. Blount, M.C., U. S. Army, Office of the Air Surgeon.

## PERSONAL

The following lieutenants (jg) now under instruction in the Postgraduate Training Program have transferred to the Regular Navy: August P. Ciell of Roxborough, Pa.; James B. Flanagan of Tyler, Texas, and Hampton Hubbard of Charlotte, N. C.

# PUBLIC HEALTH SERVICE

## COURSES IN LABORATORY DIAGNOSIS OF INFLUENZA

In response to requests from state and local health department laboratories, the Influenza Information Center at Bethesda, Md., has arranged for refresher courses in procedures used in the laboratory diagnosis of influenza. The courses are open to experienced technicians from state and local health departments, and, while tuition free, no provision is made for paying the living expenses or travel costs of those who will take the training. These courses will vary in duration from one to three weeks and will be given at selected laboratories in New York, Maryland, Georgia, Pennsylvania, Illinois and California.

## NATIONAL SYMPOSIUM ON ANTIBIOTICS RESEARCH

The Second National Symposium on Recent Advances in Antibiotics Research, sponsored by the National Institutes of Health to promote research in antibiotics, will be held in Washington, D. C., in the auditorium of the Department of Agriculture, Independence Avenue between 12th and 14th Streets, S. W., April 11 and 12.

All persons interested are invited to attend and actively participate by the presentation of reports of their current investigations in this field. To those who contemplate presentation of materials, it is suggested that three copies of an abstract of not more than 250 words of the proposed report be sent in. Before inclusion on the program, each abstract must first be accepted by the Program Committee consisting of Dr. Henry Welch, chairman; Dr. Harry Eagle, Dr. Walsh McDermott and Dr. Leonard Karel. Only papers presenting original unpublished observations will be considered. It is planned to have all accepted papers published as a monograph or supplement by a scientific journal; the abstracts submitted in advance of the meeting should be written with this in mind.

Abstracts of papers should reach Dr. Leonard Karel, Executive Secretary, Antibiotics Study Section, Division of Research Grants and Fellowships, National Institutes of Health, Bethesda 14, Md., no later than March 10.

## FEDERAL AID FOR CANCER RESEARCH

National Cancer Institute grants of $508,527 to aid laboratory and clinical cancer research in nonfederal institutions were announced December 29 by the Federal Security Administrator. The awards had been approved by the Surgeon General of the U. S. Public Health Service after recommendations of the National Advisory Cancer Council which met in San Francisco to review the grant applications. Of the 50 grants approved, 18 are new and 32 are continuations. Fifteen states, the District of Columbia, and three foreign countries are represented. The projects to be aided by these grants include investigations of possible therapeutic agents; metabolism studies of cancer, using such technic as tracing by radioisotopes; physiologic and pathologic investigations of stomach cancer; studies on the production of cancer in experimental animals, with emphasis on the determination of possible causative agents, and comparative examinations of tissues and sera in normal and malignant states.

# AIR FORCE

## COURSE FOR AIR FORCE MEDICAL EXAMINERS

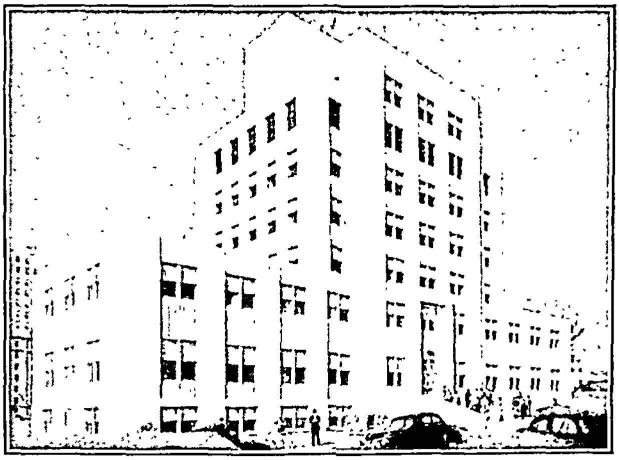
The Department of the Army announced January 25 that an eleven week course designed to qualify physicians as medical examiners for duty with the Air Force will begin March 28 at the School of Aviation Medicine, Randolph Field, Texas. The subjects to be taught include care of the flyer, air evacuation, neuropsychiatry, ophthalmology, surgery, otorhinolaryngology and preventive and global medicine. Those who graduate from the course will be designated aviation medical examiners. Applicants must be physically qualified in class III for flying as outlined in Army Regulation 40-110 and express a desire to serve with the Air Force. Officers now on active duty may apply through channels, and officers not now on active duty should submit applications to the Surgeon General, Department of the Army, Washington 25, D. C., not later than February 21.

# Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

## ALABAMA

**First Public Health Building Constructed with Federal Funds.**—The first public health center in the United States to be built with federal aid was dedicated and opened to the public in Birmingham January 27. The seven story structure was financed by about $300,000 in federal funds, to which were added the combined state-county and city funds of $600,000. The prinicipal dedicatory address was read for Dr. Leonard A. Scheele, Surgeon General of the U. S. Public Health Service, by his Deputy Surgeon General, Dr. W. Palmer Dearing. Other addresses were made by the present and immediate past governors of the state, Dr. Daniel G. Gill, state health officer, the Honorable Lister Hill, U. S. Senator, and Dr. George A. Denison, county health officer. The building will house offices of the Jefferson County Board of Health, Alabama state laboratories and voluntary agencies, such as the local branches of the tuberculosis association, the American Cancer Society, the National Foundation for Infantile Paralysis and Visiting Nurses Association. The City-County Health Department has been using emergency office space since the city hall burned in June 1944. Initial appropriations for the new building were made by the City Commission of Birmingham, the Jefferson County Commission and the State Building Commission during 1945. Ground was broken for the building in March 1947 before money was appropriated for the Hill-Burton Act. This is the first of sixty-three public health centers approved to date for federal aid under the national hospital program. Total federal funds of more than $107,000,000 have been allocated to hospital construction projects under this program for a total of 645 hospital and health facilities, according to the U. S. Public Health Service. It is the second building approved under the act in the entire country.



*Public Health Building, Birmingham.*

## ARIZONA

**Lectures in Medical Sciences.**—The staff of the Lois Grunow Memorial Clinic is presenting its third annual lecture series in medical sciences at the Lois Grunow Memorial Clinic, Phoenix, February 24-26.

**Pilot Mental Health Project.**—The Division of Mental Hygiene of the U. S. Public Health Service in cooperation with the Arizona State Department of Health has established a pilot project in Phoenix, Ariz., designed to develop and strengthen community resources for mental health. Personnel will devote most of their time to mental health training and consultation with staffs of well-baby and prenatal clinics, nursery and elementary schools, and health and welfare agencies in order to help them deal with emotionally disturbed persons in such a way as to prevent their reaching the point where they might need psychiatric treatment. The personnel from the U. S. Public Health Service assigned to this project comprise Dr. Walter M. White Jr., Huntington, W. Va., psychiatrist, a clinical psychologist, two psychiatric social workers and one mental health nurse.

## CALIFORNIA

**Dernham Cancer Fund.**—The recently established Laura and Henry and Irene B. Dernham Cancer Fund for research and education in cancer will be administered by the Dernham Trust Committee of the California Division of the American Cancer Society. A grant has been made to the University of California Medical School, Berkeley-San Francisco, for the study of the relationship between cancer growth and the host as studied with radioactive isotopes, under the direction of Kenneth W. Scott, Ph.D., department of radiology. Another grant has been made to Stanford University, San Francisco, to support an investigation of the effect of 4-aminopteroylglutamic acid and related compounds in the treatment of acute leukemia in children by Dr. Harold K. Faber, professor of pediatrics.

**Postgraduate Assembly for General Practitioners.**—The annual Postgraduate Assembly of the College of Medical Evangelists, Los Angeles, will be held February 25-March 1. In addition to professors of Western medical schools, papers will be presented by Drs. Frank H. Lahey, director, Lahey Clinic, Boston; Andrew Ivy, vice-president, University of Illinois, Chicago; Waldo E. Nelson, Temple University School of Medicine, Philadelphia, and Morris Fishbein, Editor, The Journal of the American Medical Association, Chicago. Dr. George T. Harding, newly elected president of the college, will discuss "The Relationship of Medicine to Religion." Doctors attending the scientific sessions will have a choice of eighty clinical presentations and general lectures during the three day meeting.

## COLORADO

**Damon Runyon Laboratory Established.**—The University of Colorado Medical Center announces the establishment of the Damon Runyon Laboratory of Chemical Embryology. The laboratory will be housed in a new cancer research wing to be constructed with funds made available by the National Cancer Institute of the U. S. Public Health Service and University of Colorado. A grant of $25,000, received in July from the Damon Runyon Cancer Fund, will be administered by a joint committee from the departments of biochemistry, obstetrics and gynecology and pediatrics. The director of the laboratory, who will begin his duties as associate professor of pediatrics (research) on July 1, is Heinz Herrmann, assistant professor of zoology at Yale University, New Haven.

## ILLINOIS

**Public Health Practices for Veterinarians.**—To give the veterinarian a better understanding of public health objectives and practices, the Illinois Department of Public Health is sponsoring an Institute on Public Health Practices for Veterinarians to be held in Springfield, March 21-23, to which all veterinarians are invited. The program has been designed to better acquaint veterinarians with the three basic public health practices, epidemiology, public health education and disease prevention and control. Subjects under discussion will include animal diseases transmissible to man, public health laboratory facilities, federal meat inspection, salmonellosis, food poisoning and infection, public health aspects of bovine mastitis, veterinary aspects of public health education and projects and plans for veterinary public health service in Illinois.

### Chicago

**Fund to Assist Students.**—The Patrick and Bertha Mooney Memorial Fund for the assistance of worthy students attending the University of Illinois College of Medicine has been established by Dr. Felix P. Mooney of Chicago, a graduate of the University of Illinois, as a memorial to his parents. The fund is to be used under the direction of Dean John B. Youmans.

**Dr. John Fulton to Give Billings Lecture.**—Dr. John F. Fulton, Sterling Professor of Physiology, Yale University School of Medicine, New Haven, will deliver the sixth Frank Billings Lecture of the Mary Holmes Nichols and Thomas Lewis Gilmer Foundation at a joint meeting of the Institute of Medicine of Chicago and the Society of Medical History of Chicago at the Palmer House, February 25, at 8 p. m., in commemoration of the William Osler centennial. His subject will be "Osler as a Humanist."

**Dr. Loosli to Head Preventive Medicine and Public Health.**—Dr. Clayton G. Loosli, associate professor of medicine and director of the Student Health Service of the University of Chicago, has been appointed to take charge of the Division of Preventive Medicine and Public Health in the School of Medicine. He also will direct the Influenza Detection Service established recently at the university by the U. S. Public Health Service. This service is concerned with the early detection of influenza and related respiratory diseases, their identification as to type and mass methods of treatment. Dr. Loosli was graduated at the University of Chicago Medical School in 1937. Dr. William G. Beadenkopf, assistant professor of medicine, has been named director of the Student Health Service.

**Reduced Amount of Dust in Air.**—Chicago's air was 8.7 per cent cleaner last year than in 1947, according to the annual report of the chief of the city's smoke inspection and abatement bureau. The city's monthly average fall of dust, 61.2 tons per square mile in 1947, was reduced in 1948 to 56.2 tons. The report showed a steady decline in the monthly dust fall over a six year period; in 1943 the average was 74.8 tons per square mile, and in 1948 it was 24.9 per cent lower. During March, the dirtiest month in 1948, the average fall from the twenty-three dustfall meters throughout the city was 75.1 tons. The Loop meter recorded the heaviest square mile fall last year, 164.2 tons. The steady decline in the total dust fall and the accompanying 50 per cent reduction of carbon content of dust indicates that smoke is contributing less to Chicago's air pollution. This is credited in part to an 8.8 per cent increase in railroad diesel locomotives during 1948. By the end of the year 45.7 per cent of all locomotive movements in the city had been dieselized. Another contributing factor was the council's adoption of an ordinance amendment giving the smoke bureau power to approve new and rebuilt fuel burning equipment.

## INDIANA

**Meeting of Study Group in Educational Campaign.**—The first meeting of a group within the Vanderburgh County Medical Society to develop a program of education on compulsory health insurance on the local level was held January 20. This group is the forerunner of a permanent committee which will be appointed to work out a detailed program. The committee will compile a library of source material, supply membership and all interested persons and groups with material for discussion and set up a speakers' bureau to get the facts before the people.

## LOUISIANA

**Dr. Heath Appointed Chairman of Psychiatry Department.**—Dr. Robert G. Heath, an instructor in neurology at Columbia University College of Physicians and Surgeons, New York, has been appointed chairman of the department of psychiatry and neurology at the Tulane University of Louisiana School of Medicine, New Orleans, effective February 1. Dr. Heath has been serving since 1947 as assistant attending neurologist at the Neurological Institute of New York and of the Vanderbilt Clinic. In 1942 he was chief resident of the institute and in 1943-1944 was demonstrator in neurology at Jefferson Medical College, Philadelphia. Dr. Heath received his medical degree from the University of Pittsburgh School of Medicine, 1938.

## MICHIGAN

**Graduate Degree in Ophthalmology.**—The Wayne University Graduate School, Detroit, beginning the second semester of this year, is offering major work leading to the degree master of science in ophthalmology. The course will be offered through the facilities of the College of Medicine.

**Personals.**—Dr. Howard Dittrick, Cleveland, was elected an honorary member of the Academy of Medicine of Cleveland December 29. He was editor of the academy's *Bulletin* for many years, an active member of committees and a recipient of its Distinguished Service Award in 1943. Dr. Dittrick is presently retiring as editorial director of the Cleveland Clinic.

## MINNESOTA

**Fellowship in Memory of Dr. Litzenberg.**—Friends, pupils and patients of the late Dr. Jennings C. Litzenberg, who was professor emeritus at the University of Minnesota Medical School, have asked the Minnesota Medical Foundation to set up a memorial fellowship. The foundation has agreed to act as trustee for the fund, which, if adequate, will be used to provide annually for the support of advanced training at the University of Minnesota, Minneapolis, or elsewhere, of especially promising physicians in obstetrics and gynecology or in basic science fields fundamental to maternal welfare. If the fund should be inadequate for this purpose, it will be used for some other appropriate subject to be determined by the trustees of the foundation.

## NEW JERSEY

**Rehabilitation Memorial Fund.**—Through the establishment of the Dr. Berthold S. Pollak Rehabilitation Memorial Fund, the Hudson County Tuberculosis League is offering rehabilitation services to county residents. Clients may include: (1) tuberculous persons discharged from hospitals; (2) tuberculous persons who were never hospitalized; (3) any person whose former illness or present handicap makes normal living difficult.

**Sixty Years of Service.**—A testimonial dinner was held February 10 by the board of directors of the Bayonne Hospital and Dispensary for Dr. Lucius F. Donohoe, medical director, on his completion of sixty years of practice in medicine. Dr. Donohoe is a graduate of New York University, 1889. He was elected to the staff in 1894 and became medical director in 1927. The hospital honored Dr. Donohoe in March 1944 on the occasion of the fiftieth anniversary of his appointment to the staff.

**Personals.**—Marguerite F. Hall, Ph.D., formerly associate professor of public health statistics, University of Michigan, Ann Arbor, has been appointed to direct the Bureau of Vital Statistics in the New Jersey State Department of Health. Dr. Carl E. Weigele of Trenton, who has been with the department since 1940, has been appointed head of the Bureau of Preventable Diseases.——A testimonial dinner honoring Dr. E. M. Zeh Hawkes of Newark was given October 29 by the medical staff of Presbyterian Hospital, from which Dr. Hawkes recently retired as medical director after twenty-one years of service. He was made medical director emeritus, a new post created by the board of trustees of the hospital. At the same time he received a citation from Union College, from which he graduated in 1887.——At the annual meeting of the American Public Welfare Association in Chicago, Dr. Ellen C. Potter, Trenton, deputy commissioner of welfare of New Jersey, received the W. S. Terry Jr. Memorial Award, "in recognition of her contribution to the field of public welfare administration, her unselfish devotion to the highest principles of social justice and her courageous battles on behalf of the underprivileged."

## NEW YORK

**Postgraduate Instruction.**—The Medical Society of the State of New York in cooperation with the New York State Department of Health has arranged a lecture on "Back Pain" by Dr. Samuel Kleinberg, New York, for the Geneva Academy of Medicine, meeting at the Belhurst Restaurant, Geneva, February 17 at 8:30 p. m. For the Madison County Medical Society a series of lectures will be given on Thursday evenings at the Hotel Oneida, in Oneida at 8:30 p. m. The schedule is as follows:

Feb. 17, Ferdinand J. Schoeneck, Syracuse, Sterility.
Feb. 24, William Woodin, Syracuse, Management of the Allergic Family.
March 3, Richard H. Lyons, Syracuse, Peripheral Vascular Disease.
March 10, Paul A. Bunn, Syracuse, Problems of Physical Diagnosis.
March 17, Leon G. Berman, Syracuse, Diagnosis and Treatment of the Acute Abdomen.
March 24, Edward M. Bridge, Buffalo, Recurrent Convulsions in Children.

**Seminar on Psychosomatic Problems.**—The Nassau Neuropsychiatric Society has planned a series of lectures for the Nassau County Medical Society on "Psychosomatic Problems in General Practice." Lectures will be given at 4 p. m. on Thursdays in the auditorium of the Nassau Hospital. The schedule is as follows:

March 10, Peter G. Denker, New York, Diagnosis and Therapy of Neurological Conditions in General Practice.
March 17, James L. McCartney, New York, Psychopathology as Found in Medicine and Surgery.
March 24, Charles E. Goshen, Hempstead, Psychopathology in Pediatrics.
John E. McGowan, New York, Mental Hygiene in the School Child.
March 31, Max Zuger, New York, What Psychoanalysis Has Contributed to the Understanding of Human Disease.
April 14, C. Milton Meeks, New York, Community Care and Commitment of the Mentally Ill.
Reginal R. Steen, New York, Care and Treatment in the State Hospital.
April 21, Round table discussion: Treatment of Nervous and Mental Diseases in Private Practice, James L. McCartney, Chairman, with H. Lawrence Sutton, Hempstead; Alexander E. Gold, New York, and Stanley T. Michael and John I. London, Brooklyn, participating.

### New York City

**Millions Left to Medical School.**—Ernest L. Woodward, former head of the Jell-O Company, who died April 16, 1948, left $2,198,571 to the University of Rochester School of Medicine for medical research and $250,000 to the Genesee Memorial Hospital in Batavia.

**Chandler Medals Awarded.**—The Charles Frederick Chandler medals, awarded periodically by Columbia University for outstanding scientific achievement, were presented January 25 to Henry C. Sherman, Sc.D., and Marston T.

Bogert, Sc.D. Dr. Sherman, Mitchell Professor Emeritus of chemistry, is widely known for his work in food and nutrition. Dr. Bogert is emeritus professor of organic chemistry.

**Association of Plumbers Establishes Blood Bank.**—A blood bank has been established at Memorial Hospital by the United Association of Plumbers Local 2, American Federation of Labor, to be supported by its 5,000 members for child victims of blood diseases. It will be named in honor of the Rev. William J. Kelley, chairman of the New York Labor Relations Board, who suggested that the blood bank be opened.

**New York Women Honored on Elizabeth Blackwell Anniversary.**—On the hundredth anniversary of the graduation of the first woman to receive a medical degree in the United States, Dr. Elizabeth Blackwell, five New York women physicians received the Elizabeth Blackwell citation for their contributions to medicine. Those receiving the awards were Drs. Lauretta Bender of the New York University College of Medicine, Connie Myers Guion of Cornell University Medical College, Anna Hubert of the New York Infirmary for Women and Children and May Wilson of Cornell University Medical College. Ceremonies were held at the New York Infirmary for Women and Children, which Miss Blackwell founded in 1853.

**Bureau of School Health.**—Under the recently organized Bureau of School Health, New York City doctors are supplying medical service to a million pupils in the elementary, parochial, junior high, vocational high and thirteen of the academic high schools in the city. The bureau, under the direction of Dr. Robert Culbert, expects to add 50 doctors to its present staff this year and to fill vacancies for 100 nurses. The elementary school medical service consists mainly of twenty minute routine examinations of newly admitted pupils with their parents present for consultation. In the first year of the program it is estimated that at least 50,000 pregraduation examinations will be given at the school and 25,000 by private doctors. The bureau also plans to gradually extend its services to all academic high schools.

**Appoint Director of Bureau of Nutrition.**—Dr. Norman Jolliffe, associate professor of clinical medicine, New York University College of Medicine, and lecturer on public health practices at Columbia University College of Physicians and Surgeons, has been appointed director of the Bureau of Nutrition of the City of New York Department of Health. Dr. Jolliffe, a graduate of the New York University College of Medicine, 1926, has served as head of the Department of Health's nutrition clinic in the Lower East Side Health Center since it was opened in 1945. He has served as a member of the Food and Nutrition Board of the National Research Council and has just finished editing a volume "Clinical Nutrition," sponsored by the council, which will be published this spring. He is also chairman of the New York Food and Nutrition Committee. The health department plans to open five other nutritional clinics within the next year.

**Symposium on Parasitic Infections.**—A symposium dealing with certain aspects of the biology, metabolism, immunity, diagnosis and treatment of the more common parasitic infections will be held at the New York Academy of Medicine under the auspices of the Section on Microbiology the evening of March 15 and afternoon and evening of March 16. The speakers and subjects to be discussed are as follows:

Paul Russell, New York, World Health Importance of Parasitic Diseases.
Clay G. Huff, Sc.D., Bethesda, Md., Significance of New Findings in Life Cycle of Malarial Parasites.
James T. Culbertson, Ph.D., Bethesda, Md., Immunological Mechanisms in Parasitic Infections.
John Bozicevich, M.A., Bethesda, Md., Immunological Diagnosis of Parasitic Diseases.
Norman R. Stoll, Sc.D., Princeton, N. J., Diagnosis of Intestinal Helminths and Protozoa.
William W. Frye, New Orleans, Studies on Growth and Metabolism of Endamoeba Hystolytica.
Theodor von Brand, Bethesda, Md., Physiology of the Blood Flagellates.
Quentin M. Geiman, Ph.D., Boston, Cultivation of Malarial Parasites.
Ralph W. McKee, Ph.D., Boston, Biochemistry and Metabolism of Malarial Parasites.
Ernest Bueding, Cleveland, Metabolism of Helminths.
Hamilton H. Anderson, San Francisco, Pharmacologic Evaluation and Clinical Application of Amebicides.
G. Robert Coatney, Ph.D., Bethesda, Md., World Status of Antimalarial Drugs.
Harold P. Brown, Ph.D., New York, Therapy of Filariasis and the More Common Intestinal Helminths.
Frederick J. Brady, Bethesda, Md., Chemotherapy of Schistosomiasis.

## OHIO

**Postgraduate Course on Diabetes.**—The Frank E. Bunts Educational Institute and Cleveland Clinic will present a continuation course for physicians entirely devoted to the diagnosis and management of diabetes and its complications on March 17-19. Drs. Henry T. Ricketts of Chicago, John S. L. Browne of Montreal and Hugh L. C. Wilkerson of the U. S. Public Health Service will be the out of town speakers. Dr. E. Perry McCullagh, Cleveland, is director of the course. In addition to the regular faculty of the institute several Cleveland physicians will give lectures. Inquiries regarding the program and registration may be addressed to the Director of Education, Frank E. Bunts Educational Institute, 2020 East Ninety-Third Street, Cleveland 6.

## PENNSYLVANIA

**Special Society Meeting.**—The March 12 meeting of the Pennsylvania Academy of Physical Medicine will be held at the Berkshire Hotel, Reading. An elaborate program has been planned for the afternoon and evening sessions, dinner and a Sunday tour of the countryside.

**Statewide Survey of Rheumatic Fever.**—The Medical Society of the State of Pennsylvania is conducting a statewide survey on the prevention of rheumatic fever. Each of the 10,750 physician members of the society has received registration blanks on which to report persons under 21 years of age with rheumatic fever; requests for 2,000 additional blanks have been received. Dr. Andrew B. Fuller, Pittsburgh, chairman of the society's Commission to Study Control of Rheumatic Fever, said that this is the first extensive and thorough registration made within the state. The survey is aimed at getting information on the number and location of cases to help in devising control measures. Rheumatic fever committees have been set up by the state medical society in the sixty county medical societies. Special meetings with little groups will be organized to acquaint the public with symptoms of the disease and safeguards to prevent it.

### Philadelphia

**Personal.**—Dr. George E. Farrar Jr., associate professor of medicine, Temple University School of Medicine, has been appointed medical director for Wyeth Incorporated, Philadelphia. He will continue his post at Temple University and maintain his connection as co-author of the U. S. Dispensatory.

**Dr. Chamberlain Awarded Medal.**—Dr. W. Edward Chamberlain, professor and head of the department of radiology at Temple University School of Medicine, has been awarded a gold medal, the highest honor of the Radiological Society of North America. It was presented at the society's annual banquet in San Francisco, December 9, for distinguished service to medicine. Dr. Chamberlain is a graduate of the University of California Medical School.

**Sigma Xi at Temple University.**—Temple University has been granted a charter to form a chapter of Sigma Xi, scientific research society of America. President of the chapter is Ralph Wichterman, Ph.D., associate professor of biology in the College of Liberal Arts. Sixty-five members of the faculty in the schools of medicine, dentistry, pharmacy, the college of liberal arts, Teachers College and the Research Institute of Temple University belong to the fraternity. James D. Page, Ph.D., associate professor and director of the psychological clinic, is secretary.

### Pittsburgh

**Course in Cardiovascular Diseases.**—The "Treatment of Decompensated Hearts" is the subject of the second of a series of postgraduate courses sponsored by the Allegheny County Medical Society's Graduate Education Committee. The course, to be given by Dr. Edward A. Brethauer Jr., includes six lectures presented in the Lecture Room at Elizabeth Steel Magee Hospital every Friday from 4 to 5 p. m., beginning January 21 and extending through February 25. The registration fee for the course is $10, which is payable to the Allegheny County Medical Society, 225 Jenkins Building, Pittsburgh. The number of registrants is not limited.

## RHODE ISLAND

**Meeting on Military Medicine.**—A joint meeting of the Rhode Island Medical Society and the Providence Medical Association was held at the Naval Air Station, Quonset, February 2. Captain Julius C. Early Jr., M.C., U.S.N., Washington, D. C., spoke on aviation medicine, and Captain Charles F. Behrens, M.C., U.S.N., Bethesda, Md., on "Medical Aspects of Atomic Warfare." A reception and dinner followed the meeting.

## GENERAL

**Orthopsychiatric Association Meeting.**—The 1949 annual meeting of the American Orthopsychiatric Association will be held at the Stevens Hotel, Chicago, April 4. This is an organization for the study of behavior and its disorders, particularly in children, and with emphasis on prevention of maladjustment as well as treatment. A registration fee will be charged for nonmembers.

**Research in Sex Problems.**—The Committee for Research in Problems of Sex of the National Research Council announces that requests for grants-in-aid during the fiscal period July 1, 1949 to June 30, 1950 will be received until March 15. Application blanks may be obtained from the Division of Medical Sciences, National Research Council, 2101 Constitution Avenue, Washington 25, D. C. Preliminary inquiries should be addressed to Dr. George W. Corner, Director of the Department of Embryology, Carnegie Institution of Washington, Wolfe and Madison Streets, Baltimore 5, chairman of the committee.

**Cartoon Booklet on Cancer Frauds.**—An eight-page cartoon booklet in four colors exposing quackery in the treatment of cancer will be distributed by the American Cancer Society through its sixty divisions in the United States during February. The booklet, aimed at an adult audience and entitled "Dr. Fraud Confesses," features a mythical Dr. Fraud, who administers quack cures until he discovers he is a victim of the disease and rushes to a real doctor with a confession. The booklet emphasizes that cancer can be cured if the patient is treated in time and that quacks delay effective treatment and are responsible for needless deaths.

**Foundation Prize in Obstetrics.**—The American Association of Obstetricians, Gynecologists and Abdominal Surgeons will present a Foundation Prize of $200 for the best 5,000 word manuscript from an intern, resident or graduate student in obstetrics, gynecology or abdominal surgery or from physicians who are actively practicing in the field or engaged in research. The award will be made at the annual meeting of the association, where the successful contestant must present his contribution. Three copies of all manuscripts must be in the hands of the secretary before June 1. For information address L. A. Calkins, M.D., secretary, University of Kansas Medical Center, Kansas City 3, Kan.

**Pharmacologic Reviews.**—Beginning with the first volume of 1949, a supplement entitled "Pharmacological Reviews" will be included with the last issue of each of the three volumes of the *Journal of Pharmacology and Experimental Therapeutics* published during the calendar year. Present plans call for supplements of about 160 pages each to appear with the April, August and December issues of the journal. The new supplement is edited by Dr. Louis Goodman, Salt Lake City. The first issue will contain articles on the anticholinesterases, drug-protein interactions, ganglionic and adrenergic blocking agents and salicylates. These supplements may be ordered separately from the journal at the rate of $2 each, or $6 a year, in advance, or may be included with the journal at an advance of $3 in the subscription price.

**Rheumatic Fever Mortality Rate Declining.**—The mortality rate of rheumatic fever has dropped 90 per cent in the United States since 1920, according to Dr. George M. Wheatley, vice president of the Metropolitan Life Insurance Company. The figure was based on mortality rates from rheumatic heart disease among industrial policy holders. The disease, he said, seems to be decreasing in severity and prevalence. The mortality decreased 22 per cent between 1920 and 1940 and has decreased 85 per cent in the seven years since then. He credits the large decrease in the last seven years to the use of antibiotic drugs in treating other ailments which lead to rheumatic heart conditions. Dr. Wheatley is chairman of the American Academy of Pediatrics' Committee on Rheumatic Fever and spoke at the recent annual meeting of the academy in Atlantic City.

**Fellowships in Child Guidance Clinic Psychiatry.**—The American Association of Psychiatric Clinics for Children offers fellowships for training in child guidance clinic psychiatry. These fellowships are made possible by the United States Public Health Service and sometimes by local funds. In addition, a few communities offer to finance the training of psychiatrists who will work for them on a contractual basis for a given period following their training. Most of the fellowships are for two years. The stipend is in the neighborhood of $3,000 for the first year, and around $3,600 for the second. The awarding of the fellowship for the second year depends on the quality of the first year's work. Prerequisites are graduation from an approved medical school, a general internship and two years of approved general psychiatry and personal qualifications essential for such work. For information write to Dr. A. Z. Barhash, executive assistant, The American Association of Psychiatric Clinics for Children, 1790 Broadway (Room 916), New York 19, N. Y.

**Farm Bureau Opposes Compulsory Health Insurance.**—The board of directors of the American Farm Bureau Federation on January 27 announced its opposition to compulsory health insurance programs such as those contemplated in the Murray Bill (S. 5). The board sent a telegram to the Senate Labor Committee asking that action be deferred on S. 5 until interested parties be given the opportunity to present their views. The text of the statement is in part: "We give all-out support to the extension of [medical and hospital services] on a voluntary basis, but we strongly oppose plans under which the federal government would embark on programs providing similar services on a compulsory basis. We favor adequate health services, accessible at all times to citizens through voluntary programs providing hospital and medical care, facilities to train more doctors and nurses, establishment of local public health units, and broad programs of health education.

"We believe that voluntary programs result in better medical service in greater volume than will be provided in any compulsory program and, at the same time, will do much to develop individual self-reliance and independence."

## CORRECTION

**Asthma and Coronary Occlusion.**—In a Query and Minor Note with this title in The Journal, Jan. 15, 1949, p. 191 in the nineteenth line of the paragraph numbered 4, it was stated that "one uses a tight tourniquet distal to the point of hypodermic." The word "distal" should have been "proximal."

**Seminar on Tumors of the Skin.**—On the joint Baltimore-Washington Seminar on Tumors of the Skin, sponsored by the Washington Society of Pathologists, Washington, D. C., February 5, the following corrections to the item that appeared in The Journal, January 1, page 43, should be made: Dr. Arthur C. Allen, Memorial Hospital, New York City, not Arthur A. Allen, Patterson, N. J., and Dr. Elson B. Helwig, Army Institute of Pathology, Washington, D. C., not of St. Louis, took part in the discussion.

# Marriages

James Talmadge Littlejohn of Jemison, Ala., to Miss Shirley Smith of Swannanoa, N. C., in Biltmore, N. C., December 18.

James Hollowell Manly Jr., Goldsboro, N. C., to Miss Dorothy Turner Hawthorne of Winchester, Va., December 22.

Merrill Frederick Nelson, Baltimore, to Miss Margaret McLeod Weskett of New Bern, N. C., December 29.

Lattie B. Painter Jr., Chattanooga, Tenn., to Miss Margaret Elizabeth Jack of Knoxville, December 4.

Albert Joseph Reinovsky, Washington, D. C., to Miss Willie Mae Hill of Cades, S. C., December 29.

Peter William Stone, Staten Island, N. Y., to Miss Dorothy Eleanor Harper in New York, December 27.

Silas David Molyneaux, Binghampton, N. Y., to Mrs. Kester Barr in Winnetka, Ill., November 6.

Benjamin E. Morgan, Birmingham, Ala., to Miss Jean Bailey of Rocky Mount, N. C., December 3.

Philip Burnard Potampa, Portland, Ore., to Miss Emmie Lee Cole of Florence, S. C., December 24.

Benjamin M. Stein, Hempstead, N. Y., to Miss Clair Wander of New York, December 31.

Frank P. Dwyer Jr., Renovo, Pa., to Miss Sarah Margaret Moffett, Ardmore, Pa., December 31.

Wallace Arnold Hull to Miss Joyce Burton, both of Indianola, Miss., December 17.

Paul E. Stange, Hoyleton, Ill., to Miss Astrid Zahn of Albany, Calif., in December.

Raymond C. Fergusson to Miss Dorothy Jackson, both of Seattle, November 26.

Ray O. Gillies Jr. to Miss Rachel Florence Koch, both of St. Louis, January 14.

Irving Puziss, Portland, Ore., to Miss Esther Cohen of Boston, December 5.

Nan Denholm to Mr. Thomas F. Wolcott, both of Flint, Mich., November 8.

# Deaths

**Ralph Bernstein,** Philadelphia; born in Columbia, Pa., April 12, 1877; University of Pennsylvania Department of Medicine, Philadelphia, 1903; Hahnemann Medical College and Hospital of Philadelphia, 1904; professor of dermatology at the Hahnemann Medical College and Hospital; fellow of the American College of Physicians and the American Academy of Dermatology and Syphilology; member of the American Academy of Political and Social Sciences and the American Association for the Advancement of Science; chief, skin section, and consulting dermatologist at the Broad Street Hospital; consulting dermatologist at the Women's Homeopathic Hospital, House of Detention for Juveniles and Shriners' Hospital for Crippled Children; consulting dermatologist at the West Jersey Hospital, Camden, Wilmington Homeopathic Hospital, Wilmington, Del., Crozier Hospital, Chester, Pa., Homeopathic Hospital, West Chester, Allentown (Pa.) State Hospital, Reading (Pa.) Homeopathic Hospital, Pottstown (Pa.) Homeopathic Hospital and Bancroft School in Haddonfield, N. J.; author of "Solidified Carbon-Dioxide," 1912, "Ultra Violet Rays in Modern Dermatology," 1918, and five editions of "Elementary Dermatology," the first in 1913 and the last in 1945; died November 19, aged 71, of coronary thrombosis.

**William Elisha Chenery** ⊕ Boston; born in Wiscasset, Me., June 14, 1864; Harvard Medical School, Boston, 1890; professor of laryngology emeritus at Tufts College Medical School; member of the executive committee and trustee of Boston University; fellow of the American Academy of Ophthalmology and Otolaryngology, American Laryngological, Rhinological and Otological Society and the American College of Surgeons; member of the American Association for the Advancement of Science, Massachusetts Society of Examining Physicians, National Geographic Society and others; specialist certified by the American Board of Otolaryngology; consultant in nose, throat and ear department, Evangeline Booth Maternity Hospital and Home, Brookline, Boston Dispensary and Children's Hospital; consultant, nose and throat department, Forsyth Dental Infirmary for Children; for many years on the staff of St. Elizabeth's Hospital; affiliated with the New England Baptist and New England Deaconess hospitals; died January 3, aged 84.

**James William Allbritain,** Kansas City, Mo.; University Medical College of Kansas City, 1896; member of the American Medical Association; on the staff of St. Mary's Hospital; died recently, in St. Luke's Hospital, aged 79, of myocardial infarct, coronary sclerosis and diabetes mellitus.

**Carleton Banks Austin** ⊕ Lordsburg, N. M.; Chicago College of Medicine and Surgery, 1915; served overseas during World War I; examining physician for the local draft board during World War II; for many years district surgeon for the Southern Pacific Railroad; died December 12, aged 57, of injuries received when struck by a truck as he was changing a tire on his car.

**Samuel Dunham Bader,** Columbia City, Ind.; Chicago Homeopathic Medical College, 1897; died December 12, aged 99, of injuries received in a fall.

**Clarence Truman Bahler** ⊕ Walnut Creek, Ohio; Western Reserve University School of Medicine, Cleveland, 1917; died October 23, aged 61, of coronary thrombosis.

**Jacob Nathaniel Bailey** ⊕ Paducah, Ky.; Hospital College of Medicine, Louisville, 1907; member of the Southeastern Surgical Congress; past president of the McCracken County Medical Society; affiliated with the Riverside and Illinois Central hospitals; died December 1, aged 65, of coronary occlusion.

**Gamaliel Wyatt Holmes Cheney,** Rome, Ga.; University of Virginia Department of Medicine, Charlottesville, 1919; member of the American Medical Association; affiliated with Floyd and McCall hospitals; died October 26, aged 63, of uremia and myocardial failure.

**Eva Hedwig Engel** ⊕ New York; Universität Bern Medizinische Fakultät, Switzerland, 1935; member of the American Psychiatric Association; died in the Harkness Pavilion October 20, aged 39, of heart failure.

**Edward P. Hand** ⊕ Holyoke, Mass.; Georgetown University School of Medicine, Washington, D. C., 1914; fellow of the American College of Surgeons; served during World War I; city physician for a three year term; affiliated with the Holyoke Hospital and Providence Hospital, where he died January 4, aged 59, of cerebral hemorrhage and chronic nephritis and hypertension.

**Luther Scott James,** Blackburn, Mo.; University of Missouri School of Medicine, Columbia, 1907; member of the American Medical Association; formerly assistant superintendent of the Missouri State School, Marshall; served during World War I; died November 29, aged 72, of coronary occlusion.

**William E. Jewett** ⊕ Adrian, Mich.; Starling Medical College, Columbus, 1897; fellow of the American College of Surgeons; died in Toledo, Ohio, December 3, aged 76, of acute coronary thrombosis and chronic nephritis.

**Jacob Arthur Johnson,** St. Paul; University of Minnesota Medical School, Minneapolis, 1928; member of the American Medical Association; affiliated with Midway Hospital and Mounds Park Hospital, where he died November 10, aged 54, of heart disease and cerebral hemorrhage.

**Aretaeus Kirk,** Philpot, Ky.; Hospital College of Medicine, Louisville, 1892; member of the American Medical Association; died October 18, aged 76, of hypertrophy of the prostate.

**Harry Judson Lipes,** Albany, N. Y.; Albany (N. Y.) Medical College, 1897; member of the American Medical Association; served in France during World War I; formerly on the faculty of his alma mater; on the staff of Albany Hospital, where he died November 25, aged 76, of carcinoma of the esophagus with metastases.

**John Spratt Mackrell** ⊕ Pittsburgh; University of Pittsburgh School of Medicine, 1909; served during World War I; affiliated with Belvedere General Hospital for many years; head of the school medical inspectors; died November 21, aged 64, of cerebral hemorrhage.

**Montrose Bovard Magoffin** ⊕ Mercer, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1912; served overseas during World War I; died in Jameson Memorial Hospital, New Castle, November 14, aged 63, of cerebral hemorrhage.

**John Wesley Pennington,** Howell, Ga. (licensed in Georgia in 1913); died in the Little Griffin Hospital in Valdosta, October 29, aged 71, of cirrhosis of the liver and cardiovascular disease.

**George Dimitre Popoff** ⊕ Canton, Ohio; Karl-Franzens-Universität Medizinische Fakultät, Graz, Austria, 1929; specialist certified by the American Board of Radiology; on the staff of Mercy Hospital; died in St. Louis recently, aged 50, of carcinoma of the lung with metastases.

**Harry Holman Rittenhouse** ⊕ Bridgeville, Pa.; University of Pittsburgh School of Medicine, 1911; died October 19, aged 63.

**Kennedy Furlong Rubert,** Owego, N. Y.; Dartmouth Medical School, Hanover, N. H., 1900; member of the American Medical Association; for many years county coroner; served during World War I; formerly school physician; died in Wilson Memorial Hospital, Johnson City, November 7, aged 79, of cerebral thrombosis.

**Daniel Edwin Sable,** Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1907; member of the American Medical Association and of the American Association of Industrial Physicians and Surgeons; chief of the city's department of public safety; served during World War I; died in Mercy Hospital, December 11, aged 64, of carcinoma of the sigmoid colon, with metastases to the liver.

**John Jay Terrall,** Augusta, Me.; Harvard Medical School, Boston, 1913; affiliated with the Augusta State Hospital; died November 25, aged 68, of interstitial nephritis.

**Henry Tetrev** ⊕ Riverside, Ill.; Chicago College of Medicine and Surgery, 1908; on the staff of St. Anthony's Hospital, Chicago; died November 7, aged 70, of carcinoma of the stomach.

**William Joseph Tierney,** New York; University of the City of New York Medical Department, New York, 1888; medical officer for the fire department for many years; died in the Lenox Hill Hospital November 23, aged 81.

**Isaac Raymond Vincent,** Mansfield, Pa.; Jefferson Medical College of Philadelphia, 1905; died in the Blossburg (Pa.) State Hospital November 20, aged 69, of intestinal obstruction and myocardial failure.

**Horace William Ward,** Winsted, Conn.; Baltimore Medical College, 1903; formerly health officer; died in the Litchfield County Hospital November 11, aged 69, of chronic nephritis, arteriosclerotic heart disease and essential hypertension.

**Alfred Weil,** New York; Universität Heidelberg Medizinische Fakultät, Baden, Germany, 1907; member of the American Medical Association and the American College of Allergists; died November 3, aged 64.

**John H. Weller** ⊕ State Farm, Mass.; College of Physicians and Surgeons, Baltimore, 1909; member of the New England Society of Psychiatry; medical director of Bridgewater State Hospital; died in City Hospital, Boston, November 19, aged 69, of heart disease.

# Foreign Letters

## LONDON

*(From Our Regular Correspondent)*

Jan. 5, 1949.

### Joint Committee for the Representation of Consultants and Specialists

The National Health Service for the first time has brought consultants and specialists into the field of medical politics as much as general practitioners and so created the need for their organization on medicopolitical lines, which has long existed in the British Medical Association for general practitioners. The association has a Consultants' and Specialists' Committee, and the question has arisen whether this committee or the colleges and corporations, which are in the hands of consultants and specialists, should represent them in dealing with the government, which now controls the medical profession so much. Though the colleges and corporations certainly are the bodies which represent consultants and specialists, they are inexperienced in political negotiations, while the British Medical Association is greatly experienced. The rivalry between the British Medical Association and the other bodies, which might have been disastrous, has been averted by an agreement reached by a committee which represented both parties, in the following terms.

1. It is essential in the interests of consultants that a joint committee of the bodies concerned should be established to speak for consultants with one voice. 2. The terms of reference should be (*a*) to represent consultants and specialists in the impending negotiations with the government on matters arising out of the National Health Service; (*b*) to prepare and submit for consideration of its constituent bodies a scheme. 3. When a constituent body disagrees with a view of the joint committee, it shall be entitled to have its view represented to the government, provided that a conference has previously been held to produce agreement. 4. The following is to be the composition of the committee, with the number of representatives: Royal College of Physicians, 3; Royal College of Surgeons, 3; Royal College of Obstetricians and Gynecologists, 2; Royal College of Physicians of Edinburgh, 1; Royal College of Surgeons of Edinburgh, 1; Royal College of Physicians and Surgeons of Glasgow, 1, and Consultants' and Specialists' Committee established by the British Medical Association, 6.

### Aseptic Dispensing

The retail pharmacist who dispenses preparations containing penicillin must satisfy the inspectors of the Ministry of Health that he has the skill and equipment to do this without introducing bacterial contamination, in order to obtain a license for this work. The latest phase of this new development of pharmacy was shown to the public in an aseptic dispensary opened in London by Boots, the pharmacists. The work is done in a sterile air-conditioned room. The ampules are filled with sterile solutions in a nylon cage. The dispenser has only his gloved hands in this cage and must see what he is doing through a small mica window.

### Success of Immunization Against Diphtheria

In the first six months of 1948 more children were immunized against diphtheria by local authorities than in any half-year since the war. They numbered 347,000 and those under the age of 5 years 288,000. Before the war there was a yearly average of more than 50,000 cases of diphtheria and 2,900 deaths. Last year there were only a little over 10,000 cases and 244 deaths.

## ISRAEL

*(From Our Regular Correspondent)*

JERUSALEM, Jan. 4, 1949.

### Problems of Beleaguered Jerusalem

After the termination of the mandate on May 15, 1948, the continuation of the health services in Palestine remained entirely in the hands of the Jewish organizations, as all former government services in this respect were abruptly discontinued. The Jewish organizations succeeded in continuing the health services almost without change, although nobody could underestimate the difficulties prevailing at the time. A particular instance of the maintenance of the health services was given in Jerusalem during the time of its siege, from April to June 1948, when the city was completely severed from the rest of Israel.

*The Supply of Food to Besieged Jerusalem.*—It was strictly in keeping with the general attitude of the mandatory government that no stocks of food were laid in for Jerusalem. The Jewish organizations had food supplies available only for a very limited time, as Jerusalem's sole highway connecting it with the coast (Tel-Aviv) was cut by the Arabs from the beginning of April and could be passed only irregularly and at great peril.

As early as in March, a shortage of foodstuffs was felt in Jerusalem. The applications of Jewish representatives for the storage of supplies were not heeded by the mandatory government. The Jews established a rationing system of their own. From April 10, the distribution of food was undertaken according to plans, bread being the first commodity to be rationed. A daily quantity of 250 Gm. per person was given. This quantity was sufficient for families with small children, as children and adults received the same rations. During the month of May, an additional kilogram of bread weekly was given to every man doing hard work. The quality of the bread was under constant control and could be considered satisfactory. As from April, the distribution of food was divided as per districts, and undertaken against food coupons given out by the central food distributing authorities. Children and pregnant women received certain supplements, such as milk powder, eggs or butter. Table 1 shows the caloric values of the food distributed in Jerusalem from April 10 to June 10—the day when the first convoy with food again came through from Tel-Aviv.

TABLE 1.—*Values of Food Distributed in Jerusalem from April 10 to June 19*

| | April 10-30 | | May 1-31 | | June 1-19 | |
|---|---|---|---|---|---|---|
| Foodstuff | Children | Adults | Children | Adults | Children | Adults |
| Calories | 1,320 | 1,400 | 990 | 890 | 680 | 660 |
| Protein, Gm. | 37 | 39 | 38 | 34 | 29 | 29 |
| Animal protein, Gm. | 12 | 8 | 9 | 5 | 5 | 2 |
| Calcium, mg. | 350 | 250 | 290 | 140 | 250 | 180 |
| Iron, mg. | 5.6 | 6.6 | 5.5 | 5.3 | 4.2 | 4.1 |
| Vitamin A, I. U. | 390 | 285 | 265 | 145 | 50 | 44 |
| Vitamin $B_1$, mg. | 0.60 | 0.61 | 0.73 | 0.68 | 0.25 | 0.25 |
| Riboflavin, mg. | 0.46 | 0.28 | 0.51 | 0.25 | 0.30 | 0.18 |
| Nicotinic acid, mg. | 4.9 | 5.4 | 4.1 | 3.8 | 2.5 | 2.4 |
| Vitamin C, mg. | 5.7 | 5.7 | 1.6 | 0.8 | 0 | 0 |

Table 1 shows clearly how the food supplies for Jerusalem's population deteriorated in the course of those weeks. Bread rations, which had already been cut in May, were only 150 Gm. per day per person in June. Vegetables and fruit disappeared completely; meat, eggs and other food containing proteins were distributed in scantiest quantities only.

The children who received the same basic quantities as the adults were better provided for, but quantitatively only and not with respect to quality. This was particularly so with infants and young children, who were continuously given foodstuffs unsuitable for them, such as coconut fat, jam, dried peas and dried beans.

Table 2 shows the nutritional value of the food distributed per person (a family consisting of 4 persons—husband, wife and 2 children of 8 and 12 years, respectively). In comparison, the normal average standard values are indicated.

It goes without saying that a deterioration in the state of health during the months of the siege was inevitable. All types of avitaminoses were seen; toxicoses were particularly prevailing in infants and young children, and a decrease of 10 per cent of the body weight of every member of Jerusalem's Jewish community was the average. Gastric-intestinal diseases were relatively rare. It is conspicuous that amebiasis—a disease frequently seen in Jerusalem—practically disappeared, and not only the acute amebiasis, but also its secondary gastric-intestinal troubles. Strange to say, hypertensive persons showed an inclination toward improvement—and that in spite of the continuous excitement owing to shooting and bombardments day and night. No increase and no deterioration in hypertensive cases occurred.

At the end of June, with the arrival of the first food convoys from Tel-Aviv, the situation changed radically. Jerusalem's food supplies improved greatly from June 20 to June 30, and since then the normalization of supplying Jerusalem has further progressed. Today, everything necessary for the population's nutrition is available in adequate rations.

Table 2.—*Nutritional Value of Food Distributed Compared with Standard Values*

| Foodstuff | Standard Values Required | April 10-30 | May 1-31 | June 1-19 |
|---|---|---|---|---|
| Calories | 2,700 | 1,360 | 940 | 670 |
| Protein, Gm | 65 | 38 | 36 | 28 |
| Animal protein, Gm | 26 | 10 | 7 | 4 |
| Calcium, mg | 950 | 300 | 215 | 230 |
| Iron, mg | 12 | 6.1 | 5.4 | 4.1 |
| Vitamin A, I. U | 4,500 | 235 | 200 | 50 |
| Vitamin $B_1$, mg | 1.2 | 0.60 | 0.70 | 0.21 |
| Riboflavin, mg | 1.7 | 0.37 | 0.38 | 0.21 |
| Nicotinic acid, mg | 12 | 5.1 | 4.0 | 2.5 |
| Vitamin C, mg | 70 | 5.7 | 1.2 | 0 |

*Problems of Health Department.*—At a meeting of the Israel Medical Association in June 1948, Dr. Syman, medical director of the Health Department of Jerusalem, gave a review of the problems of the health department during the time of the Jerusalem siege.

Two major problems had to be solved: preventing epidemics and fighting starvation with all its consequences. The danger of epidemics had particularly increased, inasmuch as many houses had been destroyed and living conditions in various districts had deteriorated alarmingly. The simultaneous danger existed of typhoid and other infectious diseases prevalent in the Arab villages and suburbs surrounding Jerusalem. A vaccination campaign against typhoid as well as against cholera was inaugurated. The work was done by close collaboration of the respective medical experts, highly efficient teamwork fighting the fly plague, chlorinating the wells and controlling the sanitary systems. Another problem was the disposal of the refuse from the households. Transport possibilities were practically nonexistent. The refuse was put in sacks and loaded on small carts. A rather unexpected problem arose out of the fact that the various Jewish cemeteries could not be used any longer, as they were under fire by the Arabs. Sites were selected for provisional cemeteries, with a view to transferring the bodies later on to their permanent place of rest.

The blowing up of the pump station at Latrun—the main pumping work of the Jerusalem water line—made the water question acute. However, owing to the foresight of the Jewish organizations, all cisterns in Jewish Jerusalem had been thoroughly cleaned as early as March and April, and placed under the permanent control of expert bacteriologists. Thus, infections through contaminated water were indeed successfully avoided. The rationing of the supply of water was similar to that of food. The average daily quantity allotted each person was ten liters. This amount had to suffice for cleaning, cooking, washing and sanitary purposes. The distribution was carried out by means of coupons. Unfortunately, it happened only too often that people were hit by shrapnel splinters, etc., in the streets during the process of the water distribution.

However, this hardship also passed, and today Jerusalem is obtaining a normal water supply from the taps, through the new water installation laid by the Israel Government.

## PARIS

*(From Our Regular Correspondent)*

Dec. 20, 1948.

### Congress of Oto-Rhino-Laryngology

The forty-sixth congress of this organization took place Oct. 18-23, 1948, in the grand lecture hall of the Paris Faculty of Medicine under the presidency of Professor Sourdille (Strassburg). On the agenda was the surgical treatment of ozena, as reported by J. Ramadier and C. Eyries (Paris). The authors consider that the attempts at pericarotid sympathectomy yields inconsistent and transitory results. After discussing various technics for inserting under the mucosa a prosthesis of acrylic resin, they explained Eyries's method: detachment of the mucosa on the external and inferior walls of the nasal fossae, except at the level of insertion of the concha nasalis inferior; in the two cells, so constituted, insertion of a number of small acrylic sticks; in this way the external wall nearly comes in contact with the partition. Eyries obtains 90 per cent success; in 60 per cent of patients the nasal fossa becomes normal again, and in 30 per cent, a nonfetid mucopurulent rhinitis persists for a few months, but almost always yields to medical treatment. Pharyngolaryngeal ozena does not always constitute a contraindication; it regresses after the recovery from nasal ozena. J. Causse (Béziers) has operated on 42 patients with ozena with Eyries's technic and, since he has inserted acrylic resin under the fibromucosa of the partition, very good results has obtained in 55 per cent, good in 35 per cent and fair in 10 per cent.

### The Strasbourg Faculty of Medicine

In 1939 during the war, the faculty had to retire to Clermont-Ferrand as did the whole university, which was most affected by the German occupation. It has lost two scientists of international reputation, Professors Vles and P. Reis, of the biologic physics department, as well as a large number of students, either killed while fighting or deported. While the university came back to Strasbourg in 1945, the resumption of activity has been very hard, the institute of pharmacology and experimental medicine having been totally destroyed by bombing and the institutes of hygiene and bacteriology partially. Other institutes were closed and their installations ransacked by Nazis. The teaching was reorganized. In 1947-1948 the laboratories for medical biology, biologic chemistry and biologic physics were well equipped again with research material. Since then, the number of students has increased. Most of the medical and scientific societies resumed their activities in the course of the scholastic year 1945-1946.

### Anniversary of Anatoxin

Roux announced the discovery of anatoxin by Ramon twenty-five years ago. At one of the last meetings of the Academy of Medicine, Ramon recalled the properties of anatoxin. The application of this discovery permits the prophylaxis and the specific treatment of diphtheria, tetanus, botulism and exanthematous typhus. It has also a great economic value in protecting livestock against various diseases.

# Correspondence

## THE LICENSURE OF THE D. P. DOCTOR

*Dear Sir:*—I should like to comment on your recent editorial ("The D.P. Doctor," The Journal, Nov. 13, 1948, p. 822).

Among the list of requirements of the various states for obtaining a medical license you state: "many of them demand fully accredited credentials which physicians from foreign countries frequently do not have." You fail to mention that these states, which constitute an extremely high percentage in this country, request graduation from an American medical school as the basis for a medical license and do not accept foreign graduates at all, regardless of the year of graduation. In another paragraph you state very correctly, "The medical schools of many of the foreign countries have been in a deplorable state since the beginning of the Nazi invasions." But what about these medical schools up to the year 1933? I graduated from the Medical School of Vienna in 1927, and saw hundreds of American doctors taking postgraduate courses from the same men who now are refused medical licenses in more than 50 per cent of the states, only because they are foreign graduates. It must be mentioned that these 50 per cent include most states of the South and Southwest, whereas states like New York, Illinois, Ohio, Massachusetts and California do not adhere to these restrictions.

I am a graduate of the Medical School of Vienna, 1927, as stated above; I was assistant to the famed pathologist, Professor Erdheim, and I have been a pathologist in Oklahoma for the past ten years. I have gained recognition among the members of the medical profession in Oklahoma and elsewhere as a pathologist; I have published several papers and presented papers before national societies. I have passed the examinations of the American Board of Pathology. I acquired a license to practice medicine in the State of New York in 1941 and became an American citizen in 1944. But I cannot obtain the license in Oklahoma and therefore cannot be a member of the American Medical Association, cannot belong to the county medical society, cannot be certified by the Board or belong to the College of Pathologists or to the American Society of Clinical Pathologists. How can you consider that a fair treatment? Did I not graduate at a time when medical education in Europe was equal to that in the United States?

I deeply appreciate the opportunity given me in the United States in general, and in the state of Oklahoma in particular, to rebuild my professional life in a way impossible in most other countries. I have shown and will continue to show my gratitude by contributions to medicine in my field to the best of my ability. But I do feel that after ten years one should become a full-fledged member of the medical profession, just as after five years one becomes an American citizen with all rights and duties. I do not feel, as you do, that the "state medical licensing boards have considered the cases of D.P. physicians with the utmost sympathy and liberality."

What can be done to change the regulations of the various states regarding the licensing of foreign graduates? Could not the year of graduation and the length of residence in the United States be made an issue in this problem? Refugee physicians have been urged to locate in the central parts of the states rather than on the East or West coast. At the same time, this is made impossible by the restrictions imposed on them in those central states.

Leo Lowbeer, M.D.,
Pathologist, Tulsa, Okla.

## TREATMENT OF ACUTE RENAL INSUFFICIENCY

*To the Editor:*—Many measures are currently being advocated for the treatment of acute renal insufficiency. The mechanisms of the renal failure include the various causes of "lower nephron nephrosis" (Lucke, B.: *Mil. Surgeon* **99**: 371, 1946), mercury poisoning, "reflex anurias," etc. The methods of treatment include peritoneal lavage, various artificial kidneys, perfusion of isolated intestinal loops, etc. The most recent method is that of exchange transfusions (J. A. M. A. **138**: 902, 1948). Recovery of the patient is believed due to the replacement therapy; unfortunate results are ascribed to inadequate continuation or repetition of the therapy.

Few of the proponents of each specific mode of treatment stress the spontaneous resolution of the anurias. Furthermore, there is no means at present of accelerating the recovery of the injured kidney segment. Any measure available at present may at best tide the patient along to the point of spontaneous recovery.

At the Mount Sinai Hospital, New York, Drs. H. E. Leiter, I. G. Kroop, A. Hyman and I investigated a group of patients who were referred to the hospital for treatment with the Kolff artificial kidney. It was soon found that despite the urgent transfer to the hospital, mechanical dialysis was not necessary. Under conservative management, diuresis and cure occurred spontaneously. The greatest difficulty in medical control of these patients was the circulatory embarrassment due to the overzealous administration of fluids by vein by anxious physicians who were attempting to "flush" the kidneys. Thus, a 20 year man with acute "toxic anuria" had been given 10,000 cc. of sodium chloride, sodium sulfate and glucose solutions by vein in forty-eight hours, and died a few hours after admission in acute pulmonary edema. Experiences such as this open to question the validity of modes of therapy which focus on the administration of large volumes of fluid intravenously to dilute "toxins" or "open the kidneys" (Hoffman, W. S., and Marshall, D.: *Proc. Central Soc. Clin. Research,* 1948, to be published).

We have found the following principles effective in the management of acute renal insufficiency. Simplicity and ease of execution are combined with the least drain on the patient. Fluids are administered almost exclusively by mouth to replace insensible loss plus other eliminated fluid (1,000 cc. plus fluid in vomitus, stool and urine). Fluids by vein are kept to a minimum. Since blood urea nitrogen is the barometer for the degree of uremia, a protein-free diet is given. Particular attention is directed at the maintenance of electrolyte balance. Daily serum chloride and carbon dioxide contents are determined and sodium chloride and sodium bicarbonate are given by mouth to combat acidosis. Subcutaneous administration of solutions is resorted to if the patient cannot tolerate food by mouth. Rarely is any other fluid than blood given by vein.

On this program, despite a persistent oliguria or anuria, the patient may remain comfortable, free of edema and heart strain, despite a progressive rise in blood urea nitrogen (Fishman, A. P., and others, *Am. J. Med.,* to be published; Leiter, H. E., and others, *J. Urol.,* to be published; Fishman, A. P., and others, *New York State J. Med.* **48**: 2393, 1948; Kroop, I. G., and others, *J. Mt. Sinai Hosp.,* to be published). If it then becomes necessary to resort to artificial dialysis, the patient is in adequate physical condition to withstand the demands of the procedure.

Each method of intervention in the management of acute renal insufficiency has intrinsic hazards. The potential dangers of peritoneal lavage, artificial kidney, etc., as well as their limitations, are available in the literature. The hazards of homologous serum jaundice and even hemoglobinuric nephrosis seem obvious in exsanguination technics. Furthermore, the depression of blood urea nitrogen by removal of the circulating blood volume and replacement can only effect an extremely transient depression of blood urea and "toxic products." Its effects are most probably even more transient than any of the advocated methods of dialysis.

Since maximum benefit from conservative therapy may be anticipated up to the eighth to tenth day of anuria, mechanical intervention should, if possible, be deferred to that time. The majority of patients treated as outlined will require no further therapy; those who do require additional treatment will be better prepared to withstand it.

Finally, I believe that the large number of reported cures, despite the use of diametrically opposed methods of treatment, is excellent evidence for the high frequency of spontaneous cures, often despite the method used, rather than because of it.

Alfred P. Fishman, M.D.,
Dazian Foundation Research Fellow,
Michael Reese Hospital, Chicago.

## DETECTION OF DIABETES

*To the Editor:*—Dr. Joslin states in his excellent article on diabetes therapy (The Journal, January 1, p. 1) that for every known diabetic person there is an unknown diabetic. With this I think there is little disagreement. He makes the very interesting suggestion that, in order to uncover these unknown persons with diabetes, the physician and the diabetic patient do urinalyses on the relatives of known diabetics, especially the fat ones. This is a good plan, but I would go a step further. Why does not everyone, not just diabetics but everyone, check his own urine for sugar—say once each week?

It occurred to me some time ago, after testing a urine sample for sugar with the "clinitest," how simple a procedure this is—just a matter of adding a tablet to a few drops of urine and water. A child could be taught how to perform this test by the time he is 6 years old with the ease he is taught to brush his teeth. I suggest that an educational program be instituted to put over the idea that everyone in the country check his own urine once a week. It is less trouble than brushing one's teeth, and most of us have been taught to do this twice daily. Of course, they would be told to report to their physician in the event of a positive test. Most of the unknown diabetic persons could be discovered, and many of them could be cured of their disease. Many workers in this field feel that if one could catch a diabetic person within the first month or two, and before he has symptoms, and start him on insulin immediately, the pathologic changes which have occurred in the pancreas may be reversed. There is considerable experimental evidence to support this. Lukens (*Yale J. Biol. & Med.* 16: 301, 1944) obtained data showing that the blood glucose level may be the factor that determines the progress of hydropic degeneration of the islet cells. This change is one of the early abnormalities noted and is reversible with adequate doses of insulin in one to four months. In animals, artificially produced diabetes can be cured when treated in this stage of the disease, and the same is probably true in human beings.

It is estimated that 50,000 persons still die of diabetes in this country annually. If even a fraction of that number could be saved by this method, it would be well worth it.

As I suggested, this plan would have to be put over on a nationwide scale as a campaign to eradicate diabetes mortality. It is even possible that we would see most persons eventually cured of the disease. Other health campaigns in this country have been very successful. The cancer and the tuberculosis campaigns, especially, have probably saved countless lives. I see no reason why it would not be equally successful as regards diabetes.

R. W. Brown, M.D., Ogden, Utah.

## LUNG CANCER IN CHROMATE WORKERS

*To the Editor:*—Since rapidly rising death rates for lung cancer in recent years have brought medical attention to sharp focus on this disease, great interest attaches to statements of Machle and Gregorius (*Pub. Health Rep.* 63: 114, 1948) that chromate workers exhibit rates ten to seventy times those normally to be expected. The recent editorial (The Journal, 138: 823, 1948) gave added importance to their statement. The rates they found among chromate workers are not strikingly different, however, from those prevailing generally among similar population segments of Chicago's industrial districts (where no chromate-producing plants are located).

White men 50 to 69 years of age living in Chicago's Loop district have a lung cancer (No. 47 International List of Causes of Death) death rate of 16.0 per 10,000 man-years of exposure for the years 1944, 1945 and 1946 (based on 1940 population figures). This is above the average rate of 12 per 10,000 man-years found by Machle and Gregorius in two of their chromate plants. It is true that much higher rates were found in two other plants, a difference for which they offer no explanation. Even in a much larger segment of Chicago's dirtier district (community areas 8, 26-28, 31-39, 59-61) white men 50 to 59 years were found to have a lung cancer death rate of 11.3 per 10,000 man-years of exposure, while in the cleanest sections of the city men of these age groups had a rate of 7.9.

It is unfortunate that Machle and Gregorius should not have selected a more appropriate control group before publishing their statements that chromate workers had lung cancer rates ten to seventy times higher than the "controls." Their control group consisted of oil refinery workers whose places of work were not specified but often are located in semirural districts. Moreover, their control statistics dated back to 1933-1938, when lung cancer rates generally were still much lower than today.

Over half of their chromate workers were located in the dirty Jersey City–Newark industrial area, and the next largest group in Baltimore. Obviously, therefore, they should have selected a control group from industrial areas with equal degrees of air pollution. Had they done so, their conclusions would have been considerably more tempered.

In view of the high lung cancer rates we have shown (Mills, C. A., and Mills-Porter, M.: Health Costs of Urban Air Pollution, *Occup. Med.*, in press) to be generally prevailing among white men of dirty industrial districts, it seems wiser to read with considerable reservation their statement that ". . . the ratios of deaths and mortality rates for cancer of the lung are so consistently high as to leave no doubt as to the relationship between exposure to chromate and the occurrence of cancer of the respiratory system." They also found high pneumonia and tuberculosis rates among chromate workers, quite as we showed for Chicago's dirty districts where lung cancer rates were highest.

It would not seem justified to ascribe to chromate exposure any specific place in lung cancer causation until the role of air pollution generally prevailing in such districts has been properly evaluated.

Clarence A. Mills, M.D.,
Cincinnati, Ohio.

# Medical Examinations and Licensure

## COMING EXAMINATIONS AND MEETINGS

### NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* Various Centers, Feb., June and Sept. 1949. *Part II.* April 1949. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2, Pa.

### EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology, Inc.: *Written.* July 15. Various locations. Final date for filing application is April 15. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Avenue, New York 27.

American Board of Dermatology and Syphilology: *Written.* Various Centers, Feb. 17. *Oral.* New York City, April 1-3. Sec., Dr. George M. Lewis, 66 East 66th Street, New York 21.

American Board of Internal Medicine: New York City, March 23-25. Philadelphia, June 1-3. *Written.* Oct. 17, 1949. Final date for filing application is May 1. Asst. Sec-Treas., Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

American Board of Obstetrics and Gynecology, Inc.: *Oral.* Chicago, May 8-14. Final date for filing application is April 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

American Board of Ophthalmology: *Oral.* San Francisco, March 21-24; New York, June 11-15; St. Louis, Oct. 15-19; Boston, Dec. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

American Board of Orthopedic Surgery: *Part I.* Various Centers, April and May. Sec., Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

American Board of Otolaryngology: New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

American Board of Pathology: Boston, April. Final date for filing application is March 1. Sec., Dr. Robert A. Moore, 507 S. Euclid Ave., St. Louis 10, Mo.

American Board of Pediatrics: *Oral.* St. Louis, Feb. 18-20. Baltimore, May 7-9. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

American Board of Physical Medicine: Atlantic City, June 4-5. Final date for filing application is March 15. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

American Board of Plastic Surgery: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

American Board of Psychiatry and Neurology: *Oral.* May. Final date for filing application is Feb. 15. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

American Board of Surgery: *Written.* Various Centers, March 1949. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

American Board of Urology: Feb. 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

### BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

Alaska:* Juneau, March 1. Sec.-Treas., Dr. W. M. Whitehead, Box 140, Juneau.

Arkansas:* Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

California: *Examination,* Los Angeles, Feb. 28-March 3. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

Connecticut:* Hartford, March 8-9. Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

District of Columbia:* *Reciprocity,* Washington, March 14. Sec., Dr. George C. Ruhland, 4130 Municipal Building, Washington.

Florida:* *Examination,* Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

Georgia: *Examination.* June, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Guam: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam, % F.P.O. San Francisco, Calif.

Indiana: *Examination.* Indianapolis, June. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

Iowa: *Examination.* Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

Kentucky: *Examination.* Louisville, June 15-17. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

Maine: Portland, March 8-9. Sec., Dr. Adam P. Leighton, 192 State Street, Portland.

Maryland: *Examination,* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore.

Massachusetts: *Examination.* Boston, March 8-11. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

Mississippi: Jackson, June. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

Montana: Helena, April 4-6. Sec., Dr. O. G. Klein, First National Bank Building, Helena.

Nebraska:* *Examination.* Omaha, June. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

Nevada: Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

New Hampshire: Concord, March 10. Sec., Board of Registration in Medicine, Dr. John S. Wheeler, 107 State House, Concord.

New Jersey: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

New Mexico: Santa Fe, April 11-12. Sec., Dr. V. E. Berchtold, 141 Palace Ave., Santa Fe.

North Carolina: *Endorsement.* Pinehurst, May 9. *Examination.* June 23-25. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

Ohio: *Endorsement.* Columbus, April 5. *Written.* Columbus, June. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

Puerto Rico: *Examination.* Santurce, March 1. Sec., Mr. Luis Cueto Coll, Box 3717, Santurce.

South Carolina: Columbia, June 27-29. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

Texas: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

Utah: *Examination.* Salt Lake City, July. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

Virginia: *Examination.* Richmond, June 17-18. *Reciprocity.* Richmond, June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.

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* Basic Science Certificate required.

### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Alaska: Juneau, Feb. 21-26. Sec.-Treas., Dr. C. Earl Albrecht, Box 1931, Juneau.

Arizona: *Examination.* Tucson, March 15. Sec., Dr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

Colorado: *Examination.* Denver, Mar. 2-3. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

District of Columbia: *Examination.* Washington, April 18-19. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., East, Washington.

Florida: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

Minnesota: *Examination.* April, June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

Oklahoma: Spring of 1949. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

Oregon: Portland, March 5 and June 18. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

South Dakota: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.

Tennessee: Memphis, March 21-22. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

Wisconsin: Madison, April 2. Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College, Ripon.

# Bureau of Legal Medicine and Legislation

## MEDICOLEGAL ABSTRACTS

**Malpractice: Dentist's Failure to Remove Broken Drill from Jaw; Statute of Limitations.**—The plaintiff sued for damages alleged to have been due to the negligence of the defendant dentist. From a judgment for the plaintiff the defendant appealed to the Supreme Court of Arizona.

The defendant assigned as error the trial court's denial of his motion for an instructed verdict as well as its refusal to grant his motion for a new trial. The basis for each motion was that there was no evidence, or at least that the evidence was wholly insufficient, to sustain the judgment in that the plaintiff had not established either negligence or proximate cause, nor had fraud or concealment been proved so as to toll the statute of limitations.

In 1935 the plaintiff consulted the defendant, a regularly licensed and practicing dentist, relative to the removal of two embedded wisdom teeth. After roentgenograms were taken by the defendant, the lower left third molar (wisdom tooth) was removed in an operation which lasted about two hours and thirty-five minutes and which involved cutting this tooth in two twice with a drill to facilitate its removal. The plaintiff was unaware of any untoward incident in connection with the operation, but he did testify that there seemed to be considerable trouble in effecting the tooth's removal and that about twenty-nine days elapsed before the gum healed. Though no roentgenograms were taken by the defendant following the removal of the teeth, it was established by other doctors who testified that, unless there was an apparent reason for doing so, standard practice would not require it. The plaintiff also testified that, following the operations, a little swelling and soreness was present now and then, at intervals of from four to six months, in his lower left jaw. Thinking, as the defendant had suggested after the operation, that a chipped bone was causing the trouble, the plaintiff went back to the defendant in the year 1938 or 1939. The defendant then made a roentgen examination of all of his teeth and jaw and gave the plaintiff the roentgenograms, telling him that there was nothing there that should give him any trouble. From that time until December 1941 or January 1942, the plaintiff's health gradually became impaired. He suffered from rheumatism, and the hearing in his left ear became affected. In all he lost about three hundred days from his usual work. He visited numerous physicians to discover the nature of his trouble, and they all informed him that there was an infection some place in his body but they could not determine where it was. Finally, in December 1941 or January 1942, after his gums had swollen up and abscessed and the abscess had broken, the plaintiff went to a Dr. Knower, who proceeded to x-ray the afflicted area where the left lower wisdom tooth had previously been removed. It was then, and not until then, that the plaintiff had learned that there was a piece of metal embedded in the jaw bone in that area, and that another small metallic particle lay externally to the bone opposite the second molar tooth region. Dr. Knower advised the plaintiff that the removal of these foreign bodies was a job for a specialist and recommended Dr. Borah of Phoenix. This advice was followed and in January 1942 Dr. Borah skilfully removed the object embedded in the jaw bone. The plaintiff, in answer to a question as to what procedure Dr. Borah followed, stated that the doctor first made a roentgen examination of the jaw to determine where he wanted to work, that thereafter the doctor would work a little while and then take a roentgenogram again, taking in all about a dozen roentgenograms, that "he removed that drill and laid it right on the table right there in front of me," that the witness saw him take it out and that this metallic object (which was admitted in evidence) had been in his possession ever since. The object removed was described as being 4 mm. in length and 1 mm. in width, slightly narrow in the central portion and slightly expanded at each end.

The gravamen of plaintiff's cause of action is negligence by the defendant in the extraction of the lower left impacted wisdom tooth, and the defendant's subsequent concealment of the true condition of the jaw bone and gum in that immediate area. The defendant knew, said the court, or by the exercise of reasonable diligence should have known, that the instruments used by him had broken off during the operation, and the failure to recognize that this had happened is regarded as malpractice. In such circumstances good practice would have dictated the taking of another roentgenogram, which would have disclosed the true condition and by an immediate correction thereof all of the subsequent difficulties encountered by the plaintiff would have been prevented. Dr. Borah testified that the object in question would have been readily observable in a roentgenogram of the area. In response to this question propounded by the trial court, ". . . if a piece of metal is left in the jaw of a patient after the removal of a tooth, does such a practice conform with the standard, the ordinary standard of the practice of dentists in the community in which you practice?" Dr. Borah gave an unequivocal answer, "No." Thus, said the court, there was supplied affirmative evidence of a violation of standards of medical practice essential to the sustaining of a verdict in the malpractice case.

In addition to establishing the defendant's negligence, said the court, it was also incumbent on the plaintiff to prove that this negligence was the proximate cause of his injury. Dr. Borah, who is both a medical doctor and a dentist, stated that if a foreign body is acting as an irritant and there is some disturbance from which the patient could be getting absorption, this could be a possible source of infection. He stated that he did not believe that the presence of a foreign body such as that involved in this case could cause rheumatism, but it might contribute to it. It would seem to be more than a mere coincidence, the court continued, that all of the plaintiff's physical ailments heretofore set forth occurred subsequent to the extraction of his wisdom teeth by the defendant and that within five or six months after the small metallic object had been removed he began to recover; he slept better, the soreness left his joints and his impaired hearing cleared up and bothered him no longer. At the time of the trial the plaintiff had completely recovered from the effects of his illness. We are, said the court, of the opinion that the evidence was amply sufficient to justify the trial court in submitting the case to the jury. We also hold that the evidence fully sustained the implied finding of the jury that it was through the negligence of the defendant that these two foreign metallic substances became embedded and were left in plaintiff's left jaw and that this negligence was the proximate cause of the injuries which plaintiff sustained.

Finally, continued the Supreme Court, we consider the question presented whether or not this action was barred by the statute of limitations. It was decided on a prior appeal of this case that fraud and concealment are sufficient to toll the running of the statute of limitations until the date of discovery of the fraudulent conduct. Do these facts fit such a rule, asked the supreme court. In addition to the aforementioned facts, the evidence discloses that shortly after the operation the plaintiff became concerned over the length of time it was taking that area to heal and that he asked the defendant about it, the latter replying, ". . . he had a hard job getting it out, and the bone might be chipped, or something, there." As heretofore stated, the plaintiff did not again return to the defendant until the year 1938 or 1939, at which time he informed the doctor of his troubles, particularly as to the periodic swelling of his gums. The defendant then x-rayed all of his teeth and jaw and told him that there was nothing there that would give him any trouble. Plaintiff further testified that until he went to Dr. Knower in December 1941 or January 1942, he had completely relied on the representations made to him by the defendant that there was nothing about his jaw that should cause him trouble. The defendant knew, or was chargeable with knowledge, of the breaking of his instruments and the great probability of the parts lying within the jaw and gums of the plaintiff. In the circumstances any conduct other than immediate action by the dentist either to remove the broken parts of his instruments or to alleviate the condition, so as to prevent any harmful consequences, or full and frank disclosure to the patient of the true facts, so as to enable the latter to take steps to correct the condition, was fraudulent concealment amounting to legal or constructive fraud. Constructive fraud, said the court, arises out of a fiduciary or confidential relationship. Such nonaction and nondisclosure as was present here was a clear breach of the close confidential relationship which of necessity exists between dentist and patient.

The legal or constructive fraud which was present in this case continued in effect during the time subsequent to the operation on the plaintiff to and until the time the plaintiff became apprised of the true condition existing within his mouth, or by the exercise of reasonable diligence should have learned the cause of his illness. Until the plaintiff's visit to Dr. Knower in 1941 he was unaware of the presence of the metal in his jaw. He had endeavored to ascertain the cause of his illness on many occasions, and he had consulted several medical doctors without success. Plaintiff's reliance on the statements made to him by the defendant in 1935 and 1938 or 1939 in regard to the condition of his jaw constituted sufficient reason for not consulting another dentist in regard to any swelling which had been periodically recurring. As this action was instituted by the plaintiff within six months after his discovery of the true facts which constituted his cause of action, the case falls within the rule set out in the former decision handed down in this case and is not barred by the statute of limitations. ". . . we hold, therefore, that fraudulent concealment by one occupying a position of trust tolls the running of the statute of limitations until the other party discovers or is put on reasonable notice of the breach of trust regardless of the form of the action. We think this rule is both reasonable and just. . . ." Accordingly the judgment in favor of the plaintiff was affirmed.—*Morrison v. Acton, 198 P. (2d) 590 (Ariz., 1948).*

# Current Medical Literature

## AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

### American Journal of Hygiene, Baltimore

*48:133-252 (Sept.) 1948*

Trends in Age Distribution of Poliomyelitis in the United States. C. C. Dauer.—p. 133.
Effect of Blood and Oxygen on Plasmodium Knowlesi Infection in Monkeys. R. H. Rigdon.—p. 147.
Exoerythrocytic Infection by Plasmodium Gallinaceum in Blood-Infected, Quinine-Treated Chicks with Special Reference to Central Nervous System. R. M. Lewert.—p. 158.
Experimental Hybridization of Anopheles Quadrimaculatus Say and Anopheles Maculipennis Freeborni Aitken. R. W. Burgess.—p. 171.
*Protective Antibodies in Serum of Syphilitic Patients. T. B. Turner, F. C. Kluth, Charlotte McLeod and C. P. Winsor.—p. 173.
Relationship of Exflagellation in Avian Plasmodia to pH and Immunity in Mosquito. D. W. Micks, P. F. de Caires and L. B. Franco.—p. 182.
Experimental Studies of Q Fever in Cattle: I. Observations on Four Heifers and Two Milk Cows. R. R. Parker, E. J. Bell and D. B. Lackman.—p. 191.
*Evaluation of Ultraviolet Radiation of Sleeping Quarters as Supplement of Accepted Methods of Disease Control. H. G. duBuy, J. E. Dunn, F. S. Brackett and others.—p. 207.
Studies of Control of Acute Respiratory Diseases Among Naval Recruits: I. A Review of Four-Year Experience with Ultraviolet Irradiation and Dust Suppressive Measures, 1943 to 1947. T. L. Willmon, A. Hollaender and A. D. Langmuir.—p. 227.
Id.: II. Limitations of Ultraviolet Irradiation in Reducing Air-Borne Bacteria in Barracks with Low Ceilings. E. T. Jarrett, M. R. Zelle and A. Hollaender.—p. 233.
Id.: III. Epidemiological Pattern and Effect of Ultraviolet Irradiation During Winter of 1946-1947. A. D. Langmuir, E. T. Jarrett and A. Hollaender.—p. 240.

**Protective Antibodies in Syphilitic Patients.**—Turner and his associates state that one of them had previously reported experiments which showed that serum from syphilitic rabbits when combined with virulent Treponema pallidum, incubated in vitro and injected intradermally in normal rabbits, exerted a protective action against the development of a local syphilitic lesion. This suppressive action appeared to be due to an antibody of the nature of protective or neutralizing antibodies which develop in the serum of animals and man during many bacterial and virus infections. The authors report results of so-called protection tests performed in a similar manner with serum from human beings. Serum specimens were obtained from patients with primary syphilis, secondary syphilis, previously untreated latent syphilis, treated latent syphilis and tertiary syphilis and from a group of persons without syphilis. Specimens from a group of healthy persons served as additional controls. Serums from patients with secondary, latent or tertiary syphilis exerted definite inhibitory effect on the development of syphilitic lesions as compared with serums from nonsyphilitic patients or from the normal pool. This effect was manifested by complete suppression of lesions at the site of inoculation of serum-spirochete mixtures, or by prolongation of the incubation period and by smaller average size of lesions. Serums from patients with primary syphilis held a somewhat intermediate position, but in general behaved more like serum from nonsyphilitic persons. It is concluded that persons with secondary, latent and tertiary syphilis possess humoral antibodies which kill, or at least inhibit, the multiplication of, T. pallidum and that these protective antibodies probably play a significant role in acquired immunity to the disease.

**Ultraviolet Radiation of Sleeping Quarters.**—DuBuy and his co-workers evaluated the effectiveness of ultraviolet radiation for the control of the common cold and similar infectious diseases of the upper respiratory tract, considered to be air borne, among the occupants of the National Training School for Boys. The study extended over six years. The amount of radiation during the last two years was about five times that recommended commercially. The general bacterial population in the radiated dormitories was sometimes higher, sometimes lower, than that of the control dormitories. The data imply that the air layers are not efficiently mixed. More efficient mixing might have been obtained at the expense of a materially increased chance of raising dust and lint. The disease incidence among the inhabitants of the radiated dormitories was sometimes higher, sometimes lower, than that of the control dormitories, with no evidence that ultraviolet radiation consistently effected a reduction in disease incidence. Since no significant effect of ultraviolet irradiation in controlling incidence of disease could be detected among about 400 inmates during six years, the beneficial effect of ultraviolet installations for general population use is questioned.

### American J. Obstetrics and Gynecology, St. Louis

**56:617-820 (Oct.) 1948. Partial Index**

The Ovary in Endometrial Carcinoma with Notes on Morphologic History of Aging Ovary. E. Woll, A. T. Hertig, G. Van S. Smith and L. C. Johnson.—p. 617.
Correlative Study of Adenomyosis and Pelvic Endometriosis, with Special Reference to Hormonal Reaction of Ectopic Endometrium. E. Novak and O. A. De Lima.—p. 634.
*Pregnancy and Subacute Bacterial Endocarditis. C. L. Mendelson.—p. 645.
Fallopian Tubal Motility in Relation to Menstrual Cycle: Clinical Study with Kymographic Uterotubal Insufflation. A. M. Davids.—p. 655.
Role of Delayed Gastric Emptying Time in Etiology of Aspiration Pneumonia. H. F. Chase.—p. 673.
Age, Incidence, and Distribution of 4,652 Cases of Carcinoma of Cervix with Report of 3 Cases During the First Two Decades of Life. M. G. Sadugor and J. P. Palmer.—p. 680.
Treatment of Carcinoma of Cervix. R. A. Kimbrough and C. W. Muckle.—p. 687.
Chancre and Carcinoma of Cervix, Simultaneous Occurrence on Opposite Lips. E. P. Solomon and A. B. Loveman.—p. 694.
Rooming-In Plan for Mothers and Infants: Appraisal from Obstetric Viewpoint of One Year's Experience at Grace-New Haven Community Hospital (University Service). H. Thoms, Edith B. Jackson, L. M. Stowe and F. W. Goodrich Jr.—p. 707.
Histochemical Studies on Secretion of Mucus by Human Endocervix. W. B. Atkinson, L. B. Shettles and E. T. Engle.—p. 712.
Diagnosis and Treatment of Anemia of Newborn Caused by Occult Placental Hemorrhage. A. S. Wiener.—p. 717.
Use of Stilbestrol in Abnormal Gynecologic Bleeding (Nonmalignant). J. W. Ross and C. M. Gill.—p. 723.
Results of Artificial Insemination with Extramarital Specimen (Semi-Adoption): Report on 89 Cases. W. H. Cary.—p. 727.
Some Psychic Aspects of Dysmenorrhea and Nausea and Vomiting of Pregnancy. Marion H. Bertling.—p. 733.
Decidual Bleeding in Pregnancy. H. A. Power.—p. 743.
*Chronic Ulcerative Colitis and Pregnancy. J. Felsen and W. Wolarsky.—p. 751.
Continuous Caudal Analgesia: Report of 1,500 Consecutive Cases. W. H. Masters.—p. 756.
Spinal Anesthesia for Cesarean Section. G. M. Craig and C. B. Crampton.—p. 762.
The Premature Infant: Study of 173 Liveborn Premature Infants. W. T. O'Connell.—p. 765.
Torsion of Hydatid of Morgagni. R. A. Reis and E. J. DeCosta.—p. 770.
Nonoperative Treatment of Urinary Incontinence in Women. M. Rashbaum and C. C. Mandelbaum.—p. 777.

**Pregnancy and Subacute Bacterial Endocarditis.**—Mendelson states that 10 cases of subacute bacterial endocarditis complicating pregnancy were recorded among 50,000 patients at the New York Lying-In Hospital from 1932 through 1947. The incidence of this complication is 0.02 per cent. Three cases with positive blood cultures occurred before the use of penicillin, and the 3 patients all died during pregnancy or the puerperium. Seven patients, treated with penicillin, survived pregnancy and delivered normal living children. Two of the penicillin-treated patients had clinically authentic subacute bacterial endocarditis during pregnancy, unconfirmed by positive blood cultures. In 5 of the penicillin-treated patients presence of the disease was proved by positive blood cultures: Three had recently recovered from the disease prior to pregnancy, and in 2 the disease developed during pregnancy. These 5 cases suggest that the past history of subacute bacterial endocarditis is not necessarily a contraindication to a subsequent pregnancy. Pregnancy should be deferred until the valvular disease has resolved. The advisability of childbearing should then be determined by the cardiac status, and accepted concepts of the management of the underlying rheumatic or congenital heart disease followed during pregnancy, delivery and the puerperium. The type of delivery should be determined primarily on obstetric indications. There is insufficient evidence to suggest that the development of subacute bacterial endocarditis during pregnancy significantly alters this same management. Anticipation of delayed valvular damage may justify interruption of early pregnancy despite current adequate cardiac reserve. Pregnancy does not alter the treatment of subacute bacterial endocarditis. The antepartum use of anticoagulants may endanger the fetus. Normal blood coagulation values should not be disturbed at the time of delivery or in the early puerperium. The prophylactic use of antibiotics during labor and the early puerperium may prevent the development or recurrence of subacute bacterial endocarditis in patients with rheumatic or congenital heart disease.

**Chronic Ulcerative Colitis and Pregnancy.**—Felsen and Wolarsky report on 34 women who had fifty pregnancies while they had chronic ulcerative colitis. These 34 women were part of a group of 783 patients who were under the care of the authors for chronic ulcerative colitis. Seven pregnancies in 5 patients did not proceed to term, three because of operative intervention. All occurred before they were seen by the authors. Pregnancy was not adversely affected in the remaining 43 instances, but was full term and resulted in live births. In nearly three fifths of the pregnancies the ulcerative colitis was definitely improved. It appears that termination of pregnancy is not indicated in the presence of chronic ulcerative colitis.

## American Journal of Psychiatry, New York

**105:**161-240 (Sept.) 1948. **Partial Index**

Psychotic Reactions in Late Recovery Period Following Brain Injury. J. A. Aita and R. M. Reitan.—p. 161.
War Crimes: Their Social-Psychological Aspects. L. Alexander.—p. 170.
Holistic Approach in Psychiatry. A. Angyal.—p. 178.
Intake Interview as Beginning of Psychiatric Treatment in Children's Cases. J. V. Coleman, Genevieve B. Short and J. C. Hirschberg. —p. 183.
Psychiatric Interviewing: I. Some Principles and Procedures in Insight Therapy. J. E. Finesinger.—p. 187.
Intensive Neuropsychiatric Treatment Program in Veterans Hospital. W. Bloomberg, S. Silverman, Anne G. Levingston and W. F. Murphy. —p. 204.
Characteristics of the Psychopath. H. Cason.—p. 211.
Electroencephalogram in Cases with Cortical Atrophy and Ventricular Dilatation. S. Levin and M. Greenblatt.—p. 220.

## American Journal of Surgery, New York

**76:**349-460 (Oct.) 1948

Cleavage Planes in Reconstructive Vaginal Plastic Surgery. J. V. Ricci, C. H. Thom and W. L. Kron.—p. 354.
Effect of Hydrogen Sulfide on Balloons of Intestinal Decompression Tubes: Experimental Study. M. O. Cantor, E. R. Phelps and R. H. Esling.—p. 364.
Traumatic Condition of Abdomen. A. R. Metz, R. Householder and G. Dangermond.—p. 368.
Experience with Norton Extraperitoneal Sections. L. L. Levinson and L. H. Douglass.—p. 378.
*Recent Developments in Water Balance. J. R. Robinson.—p. 383.
Experience with Refrigeration Anesthesia: Six Supracondylar Amputations for Arteriosclerotic Gangrene. J. B. Gordon.—p. 393.
Acute Disease of Portal Vein. C. N. Gessler.—p. 398.
Hyperparathyroidism: Analysis of 10 Cases with Special Reference to Earlier Diagnosis. L. B. Burk Jr.—p. 404.
Wounds of Heart and Pericardium. P. Crastnopol, E. Goldberger, R. M. Marcus and L. Ostrove.—p. 412.
New Concept of Pathogenesis of Urinary Lithiasis. I. Collica.—p. 424.
Treatment of Infections of Extremities: Clinical Results Obtained with Combination of Ice, Tourniquet and Intra-Arterial Penicillin. R. A. Gilbert and R. A. Call.—p. 427.

**Recent Developments in Water Balance.**—Robinson feels that administration of parenteral fluids is often carried out haphazardly, based on erroneous principles long discarded. In a canvass of fifty small community hospitals several abuses in the parenteral administration of fluids were rather generally encountered. The author points out the elementary considerations which must be kept in mind when administering fluids parenterally and discusses the various types of water imbalance. He gives a few specific examples of the proper choice of repair solutions. The first example is that of a patient in the first twenty-four hours following hysterectomy, who is not debilitated or dehydrated prior to the time of operation; the patient is not nauseated and is able to start taking fluids by mouth within a few hours after the operation. Parenterally she should not have more than 1 liter of dextrose solution to supply her water needs for the day. This may be given during the operation. The average normal patient needs parenterally only a sufficient amount of water to cover the insensible loss during the first twenty-four hours after the operation. The second example represents a similar postoperative patient, who is nauseated and vomiting after return from the operating room. A measurement of this patient's loss by vomiting should be made and replacement should be carried out, a dextrose solution in 0.6 per cent sodium chloride being used in amounts equivalent to the amount lost in vomiting. The third example concerns a patient who had undergone subtotal gastric resection. The patient should receive an amount of hypotonic (0.6 per cent) sodium chloride solution equivalent to that lost by the suction drainage. The remainder needed to cover the insensible loss plus the urinary output of the day before should be in the form of 5 or 10 per cent dextrose in water. If the patient has received blood in the operating room in the excess of that lost during the operation the need of saline solution will be proportionately reduced. The last example is that of a patient with a newly working ileostomy. This patient should receive as nearly as possible an amount of Hartmann's or isonate* (0.644 Gm. sodium chloride, 0.252 Gm. sodium bicarbonate and 0.018 Gm. potassium chloride per hundred cubic centimeters) solution equivalent to the amount of drainage from the ileostomy.

## Annals of Internal Medicine, Lancaster, Pa.

**29:**403-586 (Sept.) 1948

Alarm Reaction and Diseases of Adaptation. H. Selye.—p. 403.
Serial Electrocardiographic Changes in Young Adults with Acute Rheumatic Fever; Report of 62 Cases. N. S. Blackman and C. I. Hamilton Jr.—p. 416.
Neuronitis and Neuronopathy: Further Experiences with Typhoid Vaccine Therapy. A. M. Rabiner, M. Rosenberg and H. Freedman. —p. 432.
*Primary Splenic Neutropenia with Arthritis (So-Called Felty's Syndrome). Its Treatment by Splenectomy. S. Smith and E. S. McCabe. —p. 445.
Chronic Headache Due to Masked Hypothyroidism. N. M. Fenichel. —p. 456.
Renal Glycosuria: Review of Literature and Report of 4 Cases. J. H. Bland.—p. 461.
Differential Diagnosis Between Medical and Surgical Jaundice by Laboratory Tests. H. Popper and F. Steigmann.—p. 469.
*Löffler's Syndrome and Pulmonary Infiltrations Accompanied by Peripheral Eosinophilia. J. C. Ham and W. T. Zimdahl.—p. 488.
Obesity and Its Treatment, with Particular Reference to Use of Anorexigenic Compounds. R. H. Williams, W. H. Daughaday, W. F. Rogers and others.—p. 510.

**Splenectomy in Splenic Neutropenia with Arthritis.**—After a brief review of the literature on Felty's syndrome since 1924, when Felty first described the syndrome of chronic rheumatoid arthritis associated with splenomegaly and leukopenia, Smith and McCabe cite 2 patients, a man of 52 and a woman aged 59, with primary splenic neutropenia and arthritis, who showed clinical improvement following splenectomy with a return to normal of the leukocyte count. The authors are not concerned whether they should label them as instances of Felty's syndrome or, by considering the arthritis as a coincidence, to classify them as primary splenic neutropenia described by Doan and Wiseman. In regard to the mechanism of production of the leukopenia of pancytopenia these 2 cases appear to lend no support to the theory of Doan and Wiseman that the blood cells undergo "sequestration" and phagocytosis by the hyperactive and enlarged spleen. The first patient differs somewhat from those described by Doan in that the bone marrow was hypoplastic rather than hyperplastic. This absence of hyperplasia gave the authors much concern regarding the advisability of splenectomy, since they feared that the removal of the spleen would be of no avail in the face of what appeared to be a poorly functioning bone marrow. The authors now feel that the cases which show a decrease in the cellularity of the bone marrow probably represent the same clinical entity in a different stage of the disease. It is possible that the marrow may previously have been hyperplastic, but owing to the prolonged duration of the disease the bone marrow became exhausted (hypoplastic). Splenectomy is of value even in the presence of a hypoplastic bone marrow.

**Löffler's Syndrome.**—Ham and Zimdahl present 3 cases of pulmonary infiltration with eosinophilia. The first case had a long, stormy course which did not resemble the typical Löffler syndrome. The second case had a less severe but rather protracted course with onset suggesting angina pectoris. The third had a prolonged course with two episodes, and of the 3 cases it was the only one with a definite background of hypersensitivity. Since Löffler's original report on the syndrome of pulmonary infiltration with peripheral eosinophilia, a great many conditions with superficial resemblance to the syndrome have come to be described under that name. This seems rather unfortunate in that it tends to imply that it is a disease with varied clinical manifestations and definite causation, rather than a restricted symptom complex of unknown and possibly varied etiology. No etiologic agent was found in these cases. There may be a specific allergen to which the patient is sensitive or there may be a parasitic infestation which will respond to specific therapy. In case of an allergic background or a stormy course, it must be borne in mind that epinephrine or aminophylline may alleviate the course. The authors make a plea for a more useful and standard nomenclature.

## Annals of Otol., Rhin. and Laryngology, St. Louis

### 57:579-924 (Sept.) 1948. Partial Index

Development of Auditory Ossicles, Otic Capsule and Extracapsular Tissues. B. J. Anson, T. H. Bast and E. W. Cauldwell.—p. 603.
Complications Following Irradiation of Thyroid Gland. R. M. Lukens. —p. 633.
*Hand-Schüller-Christian Disease and Eosinophilic Granuloma of Skull. H. F. Schuknecht and H. B. Perlman.—p. 643.
Associated Symptomatology of Diseases of Epipharynx. W. H. Theobald. —p. 677.
Report of Postoperative Course of Subperichondral Total Laryngectomies. E. M. Walzl and E. N Broyles.—p. 686.
Open Approach to Arytenoidectomy for Bilateral Abductor Paralysis, with Report of 23 Cases. De G. Woodman.—p. 695.
Surgery of Nasal Septum—New Operative Procedures and Indications. M. H. Cottle and R. M. Loring.—p. 705.
Osteoma of Frontal and Ethmoid Sinuses. H. Brunner and I. G. Spiesman.—p. 714.
Experimental Study of Toxic Effects of Streptomycin on Vestibular Apparatus of the Cat. Part I. Central Nervous System. J. Winston, F. H. Lewey, A. Parenteau and others.—p. 738.
Laryngeal Tuberculosis: Observations Based on Experience of Twenty-Eight Years with Laryngeal Tuberculosis. E. A. Looper and I. B. Lyon.—p. 754.
Streptomycin in Treatment of Laryngeal Tuberculosis. B. T. Withers. —p. 769.
Use of Streptomycin in Tuberculous Tracheobronchitis. J. J. O'Keefe. —p. 784.
*Bronchoscopic Observations on Pulmonary Aspects of Fibrocystic Disease of Pancreas. J. P. Atkins.—p. 791.
Bronchoscopy in the Newborn: Analysis of 50 Cases. C. A. Heatly and E. B. Emerson Jr.—p. 802.
Tracheal and Bronchial Obstruction Due to Congenital Cardiovascular Anomalies. P. H. Holinger, K. C. Johnston and A. R. Zoos.—p. 808.

**Hand-Schüller-Christian Disease.**—Schuknecht and Perlman point out that in destructive lesions of the skull the xanthomatous diseases must be considered. They report 7 cases. Three of the patients had initial destructive lesions of the temporal bone. Their condition was classified as Hand-Schüller-Christian disease. The remaining 4 patients had solitary granulomas elsewhere in the skull. The temporal bone may be the site of early lesions in Hand-Schüller-Christian disease. When small, these lesions are silent. As the lesion grows in size, it may manifest itself in several ways: by perforation of the external auditory canal wall; erosion through the cortex of the mastoid, zygomatic and squamosal portions of the temporal bone; invasion of the labyrinthine capsule; involvement of the facial nerve; encroachment on structure in the jugular foramen, or secondary infection. When exuberant xanthomatous granulations invade the external auditory canal, they do so by passing through the canal wall and not through a defect in the tympanic membrane. When granulations appear in the external auditory canal, the diagnosis can usually be made by microscopic examination of this tissue. Uncomplicated lesions of Hand-Schüller-Christian disease or eosinophilic granuloma of the temporal bone are almost always painless, but secondary infection frequently occurs in such a diseased temporal bone. This may occur via the eustachian tube after an infection of the upper respiratory tract or through a fistulous tract in the external auditory canal wall. When this happens, the primary disease process is often overlooked. An important clue is the roentgenographic evidence of bone destruction out of all proportion to that which one would expect from the duration and degree of infection. When the nature of the lesion is suspected, it is important to seek roentgenographic evidence of other skeletal or visceral lesions. Positive biopsy diagnosis of eosinophilic granuloma or Hand-Schüller-Christian disease must be made before irradiation is given. Eosinophilic granuloma is a milder form of the basic disorder underlying Hand-Schüller-Christian disease. It usually manifests itself by a single bone lesion. Either surgical removal or irradiation of eosinophilic granuloma results in a cure of that lesion. Because it is necessary to establish the diagnosis by biopsy, it is common procedure to remove the entire lesion at the time of surgical treatment. When other lesions exist or subsequent lesions occur, they can be treated by irradiation.

**Pulmonary Aspects of Fibrocystic Disease of Pancreas.**—According to Atkins fibrocystic disease of the pancreas is characterized by an absence or diminution of pancreatic enzymes, poor utilization of protein, starch, fat and fat-soluble vitamins and the passage of large, foul, fatty stools. It develops in early childhood. Respiratory symptoms sometimes dominate the clinical picture and resemble chronic respiratory infection due to other causes. The author presents the histories of 3 children. The roentgen examination of the chest of these children frequently fails to demonstrate changes commensurate with the degree of functional disturbance. Increased hilar density with exaggeration of hilar markings is seen. Mottling of the lung fields, localized infiltrations, widening of the mediastinal shadow or emphysema may be associated with these. Bronchoscopic examination of the children presents fairly characteristic findings. A few may present the picture of tracheobronchitis with the usual moderately thin mucopurulent secretion. The common picture is that of a hyperemic sometimes granular mucosa with thickening of the bronchial spurs. On introduction of the bronchoscope the lumen is obscured by the presence of extremely viscid, purulent or, occasionally, blood-stained mucus. When this is aspirated the hyperemic bronchus shows expiratory intrusion of the posterior bronchial wall into the lumen. Bronchoscopic aspiration gives symptomatic relief and may aid in prolonging life.

## Annals of Western Medicine & Surgery, Los Angeles

### 2:397-444 (Sept.) 1948

*Our Present Knowledge of Exophthalmos and Its Surgical Treatment. H. C. Naffziger.—p. 397.
Modern Prostatic Surgery. W. C. Cook.—p. 402.
Endocrine Approach to Treatment of Allergy. Dorothy Clark.—p. 404.
Respiratory Disturbances in the Newborn. A. H. Parmelee.—p. 408.
Artificial Middle Ear Drum. M. E. Pohlman.—p. 413.
Causes of Dysphagia. R. T. Barton.—p. 414.
Psychosomatic Concept and Peptic Ulcer. G. J. Wayne.—p. 419.
Physical Therapy of Rheumatoid Arthritis. F. B. Moor.—p. 422.

**Exophthalmos and Its Surgical Treatment.**—Naffziger demonstrated that ocular protrusion is due to great enlargement of ocular muscles. A decompression of the bony orbit prevents further progression. The pathologic changes responsible have been confirmed by many, and the treatment has been widely followed in many clinics. Orbital decompression, although carrying little risk, is a procedure of such magnitude that it is reserved for cases of considerable gravity. Thirty-nine patients have come to the operation of orbital decompression, many after long observation and efforts at medical treatment. In these the indications for operation have been threatened loss of vision from danger to the cornea, choked disks or unchecked progression of proptosis which had reached the danger point. The surgical treatment consists of enlarging the orbital space to accommodate an increased mass of tissue. The use of thyroid substance or thyroid and iodine in the treatment of progressive disease seems to be of some help in controlling the progression and in promoting water excretion and lessening its storage, though the results are not striking. Efforts at reducing pituitary function by the use of high voltage roentgen therapy have given varying results. Spinal puncture and diuretics have accomplished little in the presence of orbital edema. Locally, sponge rubber compression pads may be worn at night to lessen the congestion and additional swelling noted after a night's sleep. Limitation of fluids has been of help.

## Archives of Pathology, Chicago

### 45:425-562 (April) 1948

Coarctation of Aorta and Aortic Isthmuses. J. L. Bremer.—p. 425.
Pathologic Reactions in Livers and Kidneys of Dogs Fed Alcohol While Maintained on High Protein Diet. I. L. Chaikoff, C. Entenman, T. Gillman and C. L. Connor.—p. 435.
*Parafollicular Cell Adenoma of Thyroid Gland.* L. Bakay Jr.—p. 447.
Chloroquine (SN-7618): Pathologic Changes Observed in Rats Which for Two Years Had Been Fed Various Proportions. A. A. Nelson and O. G. Fitzhugh.—p. 454.
Dilatation of Acini of Pancreas: Incidence in Various Pathologic States. A. H. Baggenstoss.—p. 463.
Pneumonia Produced by Meningopneumotropic Virus: Report of Fatal Case, with Observations on Interrelationship of Psittacosis-Like Viruses. P. F. deGara and J. Furth.—p. 474.
*Synergistic Necrotizing Action of Urethane and Chloroform.* C. C. Lushbaugh and J. B. Storer.—p. 494.
Rapid Deceleration and Rupture of Aorta. I. Tannenbaum and J. A. Ferguson.—p. 503.
Lesions Produced in Chick Embryos by Candida (Monilia) Albicans. R. F. Norris, W. K. Shorey and A. M. Bongiovanni.—p. 506.
*Extra-Abdominal Desmoid Tumors: Their Differential Diagnosis and Treatment. J. E. Musgrove and J. R. McDonald.—p. 513.
*Chondromyxoid Fibroma of Bone: Distinctive Benign Tumor Likely *to be Mistaken Especially for Chondrosarcoma.* H. L. Jaffe and L. Lichtenstein.—p. 541.

**Extra-Abdominal Desmoid Tumors.**—Musgrove and McDonald point out that the term desmoid tumor is applied to a hard, fibrous tumor occurring in the abdominal parietes. The term has also been employed to indicate similar tumors occurring elsewhere. The present study is based on a clinicopathologic examination of 34 extra-abdominal tumors which were removed surgically at the Mayo Clinic. In addition, an equal number of tumors diagnosed as low grade fibrosarcoma were taken at random from the files and studied microscopically, in a similar manner, in an attempt to draw up differential histologic and cytologic criteria between the desmoid tumor and fibrosarcoma. The extra-abdominal desmoid tumor is the same pathologic entity as the desmoid tumor occurring in the musculoaponeurotic structures of the abdominal wall. It is a benign fibrous neoplasm, which has the peculiar characteristic of locally invading and destroying the adjacent striated muscle. It does not metastasize, and there is no evidence that it undergoes sarcomatous change. Two theories of origin have been presented, namely, that of a relationship to trauma and that of an endocrinologic basis. Fourteen of the 34 patients definitely linked the onset of the tumor with some previous trauma. However, only 3 of the 34 tumors showed a trace of hemosiderin. Thus, the histories tend to corroborate the traumatic etiologic basis, while the microscopic observations tend to disprove it. There is strong evidence that the endocrine glands may play a part in the origin and "physiology" of these tumors. Desmoid tumors occur more frequently in women than in men, the ratio in this series being 2.4 to 1. The authors mention microscopic criteria that are important in the differentiation of the desmoid tumor and low grade fibrosarcoma. Desmoid tumors should be treated by radical excision. It is doubtful whether roentgen rays and radium are of value. The rate of recurrence in the 34 cases of extra-abdominal desmoid tumor was high, calling for a reassessment of the surgical and radiation forms of therapy and for more research in, and clinical trial of, endocrine therapy. Endocrine therapy holds out hope in the inoperable cases, but there is much to be learned about this form of therapy.

**Chondromyxoid Fibroma of Bone.**—Jaffe and Lichtenstein encountered a rather distinctive benign tumor of bone the anatomic peculiarities of which seem best expressed by "chondromyxoid fibroma." The lesion first impressed itself on the authors when they were reviewing their material on chondrosarcoma. To date they have observed 8 cases of chondromyxoid fibroma. The tumor apparently has not been generally recognized in the past as a distinctive neoplasm, although it appears likely that in single instances it has been reported as enchondroma and myxoma, or their cancerous counterparts. The authors interpret the lesion as a peculiarily differentiated connective tissue tumor, exhibiting certain chondroid and also myxoid traits. It is composed of cells lying loosely in a myxoid intercellular matrix which, as the tumor matures, may undergo collagenization. The tissue may also come to simulate cartilage tumor tissue in some or many fields, and in its gross appearance it likewise bears a certain resemblance to cartilage. The presence of cells exhibiting nuclear atypism may cause the lesion to appear more ominous than it is known to be, explaining why it may come to be diagnosed as a malignant tumor, particularly as chondrosarcoma. The lesion has been found so far only in the bones of the lower extremity. Most of the patients were adolescents or young adults. The lesion evolves slowly. The roentgenographic picture has a certain distinctiveness, at least when the lesion is in a long bone and has attained appreciable size, although there may be difficulty at times in differentiating it from bone cyst, enchondroma or a focus of fibrous dysplasia, without examination of tissue. The tumor is apparently entirely benign and does not tend to recur after curettage.

## Archives of Surgery, Chicago

### 56:563-692 (May) 1948

Early Days of Western Surgical Association: Presidential Address. W. M. Mills.—p. 563.
*Tumors of Sternum: Report of Case with Special Operative Technic.* J. D. Bisgard and S. A. Swenson Jr.—p. 570.
Volume of Blood in Patients with Toxic Goiter. J. H. Clark and M. C. Lindem.—p. 579.
Use of Propylthiouracil in Treatment of Toxic Goiter. A. S. Jackson. —p. 586.
Survey of Results of Operations for Hernia in Rock County, Wisconsin. T. J. Snodgrass, W. A. Munn and T. Flarity.—p. 596.
Hepaticoduodenostomy for Stricture of Common Hepatic Duct. O. F. Lamson.—p. 605.
Surgical Significance of Hematemesis and Melena. H. L. Thompson. —p. 613.
Gastrojejunal Ulcer: Clinical Features and Late Results. J. T. Priestley and R. H. Gibson.—p. 625.
**Prolapse of Rectum: Report of Case. C. J. Hunt.—p. 642.*
*Pigment Nephropathy in Battle Casualties. H. E. Snyder and J. W. Culbertson.—p. 651.
Evolution in Treatment of Inguinal Hernia, with Some Considerations for Successful Repair. A. E. Benjamin and H. G. Benjamin.—p. 672.
Evaluation of Colorectectomy and Immediate Anastomosis of Rectum. R. R. Best.—p. 681.

**Prolapse of Rectum.**—According to Hunt a rectal prolapse, or procidentia of the rectum, may be classified as mucosal or complete. The mucosal type is an evulsion of the mucous membrane and does not involve a descensus of the entire rectum. The mucosal form is common in old persons with relaxed sphincters and hemorrhoids. True prolapse or herniation of the rectum is a descensus of the entire rectum. This results when a pouch of peritoneum in the cul-de-sac or rectovesical space pushes its way through a weak area of the pelvic fascia. In a mucosal prolapse the protruding mucosa is smooth, while in true prolapse it is wrinkled. This condition can be approached from within the abdomen or externally. The procedures within the abdomen are directed toward obliteration of the cul-de-sac or rectovesical space by multiple purse string sutures of nonabsorbable material, together with a suspension or fixation of the uterus in women. This is the principle of the Moschowitz operation. The author also comments on Mayo's contribution, the Lockhart-Mummery, the DeLorme, the Graham and the Pemberton and Mixter procedures. The case of the man described in this paper did not lend itself to any of these procedures. The hernial defect was too large. The mass of prolapsed rectum was 8 inches (about 20 cm.) in length and 18½ inches (about 47 cm.) in circumference. The surface was in part covered by extensive leukoplakia, the true cell structure of which was questionable. A posterior rectal excision and a pull-down type of operation might have been successfully done, but the author preferred an abdominal to a perineal colostomy. An abdominoperineal resection has given good results and has permitted the patient to return to a gainful occupation. The posterior operative site is well healed, and there is no hernia. The colostomy functions well.

**Pigment Nephropathy in Battle Casualties.**—Progressive oliguria and anuria in battle casualties resuscitated from shock, and apparently on the road to recovery following extensive surgical procedures, caused the death of a significant number of severely wounded soldiers between the fourth and the eighth day after the wound was incurred. At necropsy the kidneys were somewhat enlarged, and pigment casts were seen in the distal convoluted and collecting tubules. Necrosis of the distal tubules was observed, with some inflammatory reaction in the adjacent stroma. Some cases showed slight swelling of the cells in Bowman's capsule. This lesion has been variously termed pigment nephropathy, hemoglobinuric nephrosis and lower nephron nephrosis. A study of the 99 cases in which pigment nephropathy was known to be present forms the basis of this report by Snyder and Culbertson. In all but 5 cases there was evidence that shock had existed. In 4 of the 5 nonshock cases there was evidence of poisoning due to sulfonamide drugs, crush injury or transfusion reaction. The authors discuss possible causative factors, and refer to recent experimental work. They conclude that pigment nephropathy occurs with a variety of conditions. In battle casualties, the renal damage is probably dependent on renal ischemia plus the excretion of pigment. The renal ischemia is vasoconstrictive in origin. The pigment may be myoglobin or hemoglobin. The hemoglobin may be from transfused blood or intravascular hemolysis. The role of infection should be investigated, and the influence of various anesthetic agents should be studied. Treatment should be prophylactic. Shock should be combated vigorously, with prompt restoration of the volume of blood. This should be accomplished with the proper medium, which for most battle casualties is whole blood. Treatment with oxygen is of value in combating anoxia. Injudicious use of sulfonamide drugs should be avoided, and discontinuance of their use in conditions predisposing to nephropathy should be considered. Dehydration should be avoided or corrected as promptly as possible. Thorough surgical removal of all devitalized tissue and foreign bodies and provision of adequate drainage to infected areas are important.

## Arkansas Medical Society Journal, Fort Smith

### 45:79-96 (Sept.) 1948

Neurological Signs of Early Poliomyelitis. L. J. Pollock.—p. 79.
Office Anesthesia. M. D. Prickett.—p. 84.

### 45:97-110 (Oct.) 1948

The Lymphnode as Aid to Practitioner in Diagnosis. R. L. Ferguson. —p. 97.
Some Points of Interest Concerning Vaginal Moniliasis. E. T. Ellison. —p. 100.
Tuberculosis Perirectal Fistula with Recovery Following Debridement and Skin Grafting with Simultaneous Administration of Streptomycin. K. H. Kemp.—p. 101.
Education in Allergy. A. G. Cazort.—p. 101.

## Bulletin of Johns Hopkins Hospital, Baltimore

### 83:279-366 (Oct.) 1948

Effect of Ovariectomy and Physiologic Doses of Estradiol Upon Body Weight, Linear Growth and Fat Content of Female Albino Rat. M. J. Nyda, S. F. de Majo and R. A. Lewis.—p. 279.
*Circulating Anticoagulant as Cause of Hemorrhagic Diathesis in Man. C. L. Conley, H. K. Rathbun, W. I. Morse II and J. E. Robinson Jr. —p. 288.
*Clinical Manifestations of Severe Form of Diphtheria. A. M. Fisher and S. Cobb.—p. 297.
Antibody Formation in Alloxan Diabetes: Comparison of Precipitin Response to Egg Albumen of Normal Rabbits and of Rabbits with Alloxan Diabetes. T. P. B. Payne and A. H. Cruickshank.—p. 326.
Comparative Study of Antihistamine Substances. I. Introduction and Dale Experiments. S. W. Landau and L. N. Gay.—p. 330.
Comparative Study of Antihistamine Substances. II. Activity in Vivo Against Histamine Intoxication and Anaphylactic Shock of Guinea Pigs. S. W. Landau, H. J. L. Marriott and L. N. Gay.—p. 343.
Comparative Study of Antihistamine Substances. III. Clinical Observations. L. N. Gay, S. W. Landau, P. E. Carliner and others.—p. 356.

**Cause of Hemorrhagic Diathesis in Man.**—Conley and his co-workers report 3 male patients between the ages of 38 and 67 in whom a hemorrhagic diathesis with prolonged clotting time was associated with the presence of an anticoagulant in the blood. The anticoagulants appeared to be different in each of the 3 cases. There was no family history of hemorrhagic tendency and no previous history of abnormal bleeding in 2 of these patients, while the third patient was hemophiliac. In this patient precipitins against antihemophilic globulin could not be demonstrated, but a relationship between previous transfusions and the production of the anticoagulant seems not unlikely. One of the 2 patients whose anticoagulant resembled that of the hemophiliac in its mode of action had not received transfusion prior to his coagulation disorder. His anticoagulant must have been produced by some other mechanism. The clotting inhibitor of the second nonhemophiliac patient was different from the others in its mode of action. The anticoagulant in each patient was relatively heat stable, nondialyzable and probably protein in nature. The anticoagulants of the hemophiliac and of the patient whose anticoagulant resembled that of the hemophiliac did not appear to be antithrombic or antithromboplastic. Their action, therefore, must precede the liberation of active thromboplastin in the blood. It seems probable that they exert their effect by preventing the conversion of a thromboplastin precursor to its active state. The clotting inhibitor in the plasma of the second nonhemophiliac definitely delayed the conversion of prothrombin to thrombin even in the presence of an excess of active thromboplastin. The cases reported emphasize the importance of performing anticoagulant assays on the blood of patients with prolonged clotting times.

**Clinical Manifestations of Severe Diphtheria.**—Fisher and Cobb report clinical and laboratory features observed in 30 patients between the ages of 3 and 70 with the severe or the malignant type of diphtheria. Twenty-one of the patients died. There was clinical evidence of myocardial involvement in 27 patients; this was usually, but not always, verified in the cases in which necropsy was performed. Cervical adenitis was accompanied by a pronounced edema resulting in the so-called bullneck appearance in 18 patients. It has not been found to be due to bacterial invasion, and it would seem that this reaction is caused by local spread of the toxin. Laryngeal or tracheobronchial obstruction was encountered in 15 of the patients and was nearly always relieved by prompt tracheotomy and suction. Twelve of the 30 patients had a previous history of immunization against diphtheria. Similar experiences have been reported in other outbreaks. The inaccuracy of the virulence test as routinely employed is indicated by the fact that 6 of the 30 strains of diphtheria bacilli isolated were reported as avirulent. The average duration of the acute infection from its onset to the time antitoxin was given was 4.7 days. This delay in therapy was probably the most important cause of serious complications or death. Stress is laid on the urgent necessity of suspecting the possibility of diphtheria in all questionable cases, so that the diagnosis may be made early and specific treatment administered promptly.

## Bulletin New York Academy of Medicine, New York

### 24:619-684 (Oct.) 1948

*Venous Thrombosis and Pulmonary Embolism. A. W. Allen and G. A. Donaldson.—p. 619.
*Early Recognition of Post-Operative Venous Thrombosis: Increased Prothrombin Activity as Aid to Diagnosis. E. B. Mahoney and Rachel S. Sandrock.—p. 636.
Early Diagnosis of Cancer. C. D. Haagensen.—p. 651.
Surgical Treatment of Cancer of Cervix Uteri (Radical Operation for Cancer of Cervix). A. Brunschwig.—p. 672.

**Venous Thrombosis and Pulmonary Embolism.**—Allen and Donaldson report on 2,667 patients who received some form of specific measures at the Massachusetts General Hospital for the prevention or the treatment of the thromboembolic syndrome. In this group of cases there were 12 deaths related to the process toward which the treatment was directed. General prophylactic measures only were used in most patients under the age of 30. Specific treatment was indicated in a few of these because of the previous history of phlebitis or the type of lesions present. Therapeutic specific measures were carried out when indications of thrombosis or infarct occurred. Four hundred and ninety-six patients between the ages of 40 and 65 were treated prophylactically with small doses of dicumarol® postoperatively. None of these died of pulmonary embolism. Bleeding from suture lines and a tendency of large dead spaces to fill with blood after the use of dicumarol® were noted. The authors believe that anticoagulants cannot be safely used empirically and that careful laboratory and clinical control is necessary. Prophylactic bilateral superficial femoral vein interruption, as close to the profunda femoris vein as is technically possible, was done on 871 patients whose age of 65 or over, debility or disease indicated that in a high percentage of them thrombosis of the veins of the legs would be likely to develop. Of these patients 4 died subsequently of pulmonary embolism. This was a highly vulnerable group of patients and, on the basis of comparable experience, 37 deaths from embolism might have been expected. Of 1,260 patients treated by phlebotomy, thrombectomy and femoral vein interruptions after signs or symptoms indicated that thrombosis had occurred 6 died of further emboli. It is estimated that 60 of these might have succumbed if specific therapy had been withheld. In a small percentage of these patients anticoagulants and lumbar sympathetic procaine blocks were also used. Deaths from sudden pulmonary embolism still occur in untreated patients in the Massachusetts General Hospital in spite of alertness to the possibilities. As a result of the diminished mortality from shock, infection and pneumonia in recent years thrombosis and embolism have become a more prominent cause of death than formerly noted.

**Postoperative Venous Thrombosis.**—Mahoney and Sandrock determined the prothrombin activity of plasma, using Quick's one stage method in 68 postoperative patients. In 10 of these patients thrombosis developed, while the remaining 58 had no complications. Most of the patients selected were over 50 years of age and were undergoing major abdominal or chest operations, or had a history of previous thrombophlebitis. After operation the prothrombin activity decreased (prothrombin time increased) during the first three days; the lowest level usually occurred on the third day. After the third day the level increased, and returned to normal about the sixth day. In young persons there was a more rapid return to the preoperative level and the curves were more variable. There is less variation in the results obtained with whole plasma than with dilute plasma. The prothrombin activity of the 10 patients in whom thrombosis developed varied much more than the normal values on the first and second days and was in general above normal. It was above 100 per cent on the second and third days. The increase in prothrombin activity was usually abrupt; it was significantly higher in every instance than the values obtained in normal patients. In this group of 10 patients, only 5 were treated with anticoagulants. In some untreated patients the prothrombin values remained high after the third day, but in many the values returned to normal even though thrombosis was present. The hyperprothrobinemia which has appeared rather uniformly on the third postoperative day in patients who subsequently showed clinical evidence of thrombosis suggests that at this time the thrombotic process is just beginning in small veins. The increased prothrombin activity appears to be a transitory phenomenon and is a warning that changes are occurring in the blood which result in thrombosis. Increased prothrombin activity is suggested as an aid to the early diagnosis of postoperative thrombosis and as a basis for selecting patients who should receive prophylactic anticoagulant therapy.

## California Medicine, San Francisco

### 69:247-332 (Oct.) 1948

*BAL (2,3-Dimercaptopropanol) in Treatment of Massive Overdosage with Mapharsen. C. D. Armstrong, W. J. Fleming and W. G. Thalmann.—p. 247.
*Treatment of Duodenal Ulcer by Conservative Gastric Resection with Partial Vagotomy. A. Stevens.—p. 252.
Orthostatic Hypotension and Orthostatic Tachycardia: New Clinical Observations, Successful Treatment with Paredrine, and Review of Literature. A. S. Yuskis and G. C. Griffith.—p. 255.
Bronchial Asthma in Infants and Children—Its Diagnosis and Treatment. A. H. Rowe and A. Rowe Jr.—p. 261.
"Pitfall" of Normal Results of Urinalysis. D. W. Atcheson.—p. 269.
Massive Herniation of Intervertebral Disc Producing Compression of the Cauda Equina. H. A. Black.—p. 271.
*Cutaneous and Epidemic Diphtheria. R. L. Stern.—p. 274.
Berman Foreign-Body Locator. J. P. McBride.—p. 276.

**BAL in Treatment of Mapharsen Overdosage.**—Armstrong and his co-workers treated 2 men aged 30 and 31, respectively, who had syphilis and to each of whom were administered inadvertently the contents of a ten dose oxophenarsine hydrochloride vial (600 mg. of oxophenarsine hydrochloride or 174 mg. of arsenic) with BAL (2,3 dimercaptopropanol). An intramuscular injection of 3 mg. of BAL per kilogram of body weight was given as the initial dose within thirty minutes after the injection of oxophenarsine. This dose was repeated every four hours for the first two days, every six hours for the third day, twice daily for eight days thereafter and once on the twelfth and last day of treatment. At the end of the fifth day of the treatment the total amounts of arsenic excreted in the urine were 46.9 mg. and 51.9 mg. respectively. Neither patient showed striking signs of BAL toxicity or the visceral toxic effects usually attributed to arsenic poisoning. After completion of the treatment both patients remained entirely asymptomatic except for a slight scaly exfoliation of the skin of the hands and feet in one of them. BAL therapy completely counteracted the effects of the 600 mg. dose of oxophenarsine hydrochloride.

**Treatment of Duodenal Ulcer.**—Stevens presents a preliminary report on the combined procedure of conservative gastric resection and partial vagotomy in a series of patients with duodenal ulcer. The purpose of the combined treatment is to attack both the hormonal and the nervous phase of the secretion of gastric acid without removal of the duodenal ulcer itself. Vagus fibers on the lesser curvature of the stomach were included in a mass ligation and division of the coronary artery high up on the lesser curvature. According to Dragstedt this should include at least 75 per cent of the fibers of both vagus nerves. This procedure is simple and brief. Approximately one half of the stomach, including the pyloric portion, was removed rather than the conventional three fifths. The postoperative reduction of gastric acid was more consistent than that following complete double vagotomy alone. In 10 patients of this series the free hydrochloric acid was reduced from an average of 43.8 per cent preoperatively to an average of 2.6 per cent, as compared with a reduction of free hydrochloric acid from an average of 44 per cent preoperatively to an average of 9.7 per cent postoperatively in 10 patients with complete vagotomy. The data on the 10 cases are typical of the series as a whole. Insulin tests showed a reduction of free hydrochloric acid from an average of 69 per cent preoperatively to an average of 17 per cent postoperatively. This suggests that partial vagotomy as executed in this series is effective. The stomach was divided at or just below the gastroduodenal junction. Rather than dissect the posterior wall of the duodenum, which heals poorly, from the head of the pancreas, the capsule of the pancreas, which heals rapidly, was used as a reinforcing layer in the closure of the duodenal stump. There has not been any leakage of the duodenal stump.

**Cutaneous and Epidemic Diphtheria.**—Stern reports an epidemic of 133 pharyngeal, cutaneous and combined cases of diphtheria in the Pacific in 1944. Thirty-three patients had shown negative reactions to the Schick test within two months previous to the onset of the disease. Indolent ulcers which give few symptoms may well act as a quiet source of virulent pharyngeal diphtheria. The typical ulcers observed by the author were generally round or oval, varied from a few millimeters to 4 cm. in diameter and had a sharply demarcated "punched out" appearance. The base was flat and usually fairly clean but at times covered with a thin, grayish fibropurulent layer or a thin dry crust. The lesions were painless except when situated in areas involved in motion. They were usually on the extremities at the site of previous trauma such as abrasions, insect bites or scratches. Often, when initial cultures from the lesions were negative for the diphtheria bacillus, positive cultures were obtained after sterile wet saline compresses had been applied from eight to twenty-four hours. These ulcers when healed presented another characteristic observation in that the scars were usually hypesthetic or anesthetic to pin prick. Penicillin is of no proved use in diphtheria except in clearing of the pharyngeal carrier state and hastening the healing of cutaneous ulcers. Penicillin solution of 500 units per cubic centimeter on moist compresses was of definite value in shortening healing time of the cutaneous lesions.

## Cancer Research, Baltimore

### 8:145-192 (April) 1948

Action of Mustard Gas (Beta Beta'-Dichlorodiethylsulphide) on Living Cells in Vitro: I. Immediate Cytological Effects of Mustard Gas and of Its Hydrolysis Products. II. Effect on Cell Growth of Adding Small Concentrations of Mustard Gas to Culture Medium. H. B. Fell and C. B. Allsopp.—p. 145.
Physiological Studies on Tumor-Inhibiting Agents: III. Effect on Apparent Systolic Blood Pressure in Mice of Serratia Marcescens Tumor-Necrotizing Polysaccharide of Shear. L. V. Beck, D. Berkowitz and Blanche Seltzer.—p. 162.
Biochemistry of Benzpyrene: III. Quantitative Estimation of Metabolites. F. Weigert.—p. 169.
Prothrombin Activity in Rats with Mammary Tumors. J. B. Field.—p. 172.
Effect of Repeated Applications of Minute Quantities of Mustard Gas (Beta Beta'-Dichlorodiethylsulphide) on Skin of Mice. H. B. Fell and C. B. Allsopp.—p. 177.
Retardation of Growth of Transplantable Carcinoma in Mice Fed Basic Metachromatic Dyes. J. F. Riley.—p. 183.

## Connecticut State Medical Journal, Hartford

**12**:915-982 (Oct.) 1948

Streptomycin: A Review. N. L. Cressy.—p. 915.
Psychosomatic Medicine and Occupational Therapist. D. P. Griffin. —p. 923.
*B.A.L. (2,3 Dimercaptopropanol) in Treatment of Acute Arsenic Poisoning: Case Report. L. A. Chotkowski.—p. 927.
Treatment of Case of Severe Pre-Eclampsia with Concentrated Serum Albumin (Salt-Poor). H. C. Taylor.—p. 930.
Intravenous Procaine Below Tourniquet for Surgery of Extremities. S. Wolfson.—p. 932.
Organization Responsibilities of County Medical Societies. T. J. Danaher.—p. 935.
Commentary on Full Time Teaching. H. S. Burr.—p. 937.

**BAL in Acute Arsenic Poisoning.**—Chotkowski presents a case of accidental arsenic poisoning in a 15 month old child, which was treated successfully with BAL with complete recovery despite the ingestion of a possible fatal dose. BAL (2,3 dimercaptopropanol) is a drug easily administered in a 10 per cent solution intramuscularly and should be readily available in every hospital for immediate use in arsenical and probably other heavy metal poisoning.

## Endocrinology, Springfield, Ill.

**43**:127-192 (Sept.) 1948

Failure of Massive Doses of Estrogen to Promote Growth of Endometrial Coiled Arterioles. I. H. Kaiser.—p. 127.
Effect of Altered Sodium or Potassium Intake on Width and Cytochemistry of Zona Glomerulosa of Rat's Adrenal Cortex. Helen Wendler Deane, J. H. Shaw and R. O. Greep.—p. 133.
Effect of Induced Secretory Activity on Cholesterol Content of Immature Rat Ovary. L. Levin and J. W. Jailer.—p. 154.
Relationship Between Thyroid Activity and Level of Pseudo-Cholinesterase in Plasma of Rats. Rosemary D. Hawkins, Margaret Nishikawara and B. Mendel.—p. 167.
Inhibitory Action of Excessive Iodide Upon Synthesis of Diiodotyrosine and of Thyroxine in Thyroid Gland of Normal Rat. J. Wolff and I. L. Chaikoff.—p. 174.
Nature of Anemia of Pregnancy in the Rat. C. F. Bond.—p. 180.

## Gastroenterology, Baltimore

**11**:281-412 (Sept.) 1948

An Operating Gastroscope. E. B. Benedict.—p. 281.
*Combined Liver Biopsy and Liver Function Study in 132 Cases of Cholelithiasis and 31 Cases of Peptic Ulcer. (Operated Cases.) (Emphasis on Early Microscopic Liver Disease and Particularly Acute Infiltrative Hepatitis and Microscopic Periportal Cirrhosis.) J. G. Mateer, F. W. Hartman, J. I. Baltz and others.—p. 284.
*Gastric Mucosa After Vagotomy for Peptic Ulcer: A Gastroscopic Study. L. M. Asher.—p. 303.
Acute Cholecystitis: Correlation of Bacteriology and Mortality. L. Goldman, J. A. Morgan and J. Kay.—p. 318.
Effect of Insulin Hypoglycemia on Gastric Secretion in Duodenal Ulcer and Controls. A. Winkelstein and M. Hess.—p. 326.
Acute Esophageal Ulceration Associated with Intranuclear Inclusion Bodies. P. H. Hartz and A. van der Sar.—p. 337.
Effect of Demerol on Sphincter of Oddi in Man. R. W. Utendorfer and G. S. Bergh.—p. 341.
Effects of Certain So-Called Antispasmodics on Intestinal Motility. E. L. Posey Jr., J. A. Bargen, W. H. Dearing and C. F. Code.—p. 344.
Inhibition of Schwartzman Phenomenon by Antihistamine and Vitamin P-Like Substances. Z. Maratka and A. C. Ivy.—p. 357.

**Liver Biopsy and Liver Function Study.**—Mateer and his associates compared in 132 patients operated on for cholelithiasis, and in 31 patients operated on for peptic ulcer, the results of biopsy of the liver at the time of laparotomy with the results of preoperative functional tests of the liver. This is a study of very early hepatic disease. The majority of the 163 livers appeared normal at biopsy, and 121 of the patients failed to present clinical evidence of hepatic disease before operation. All biopsy tissue was obtained either from an area in the right lobe of the liver far distant from the attachment of the gallbladder or from the left lobe. The interior of deep "wedge" biopsy specimens from the edge of the liver seemed to provide slightly more representative microscopic information than needle biopsies. Wedge biopsies were obtained in all 163 cases and needle biopsies in 55 cases. Only 6 per cent of the patients with gallstones and only 7 per cent of the patients with peptic ulcer revealed normal livers on histologic study. Microscopic periportal cirrhosis and acute infiltrative hepatitis were the two most interesting conditions encountered in the histologic studies. The periportal cirrhosis which is characterized by an abnormal increase in the fibrous stroma and by a mononuclear infiltration of the stroma occurred in 33 per cent of the gallstone cases and 29 per cent of the peptic ulcer group. Acute infiltrative hepatitis characterized by a polymorphonuclear infiltration of the hepatic parenchyma was seen in 15 per cent of patients with gallstones and in 10 per cent of the patients with peptic ulcer. The degree of positiveness of the reactions to the six hepatic function tests was greater in the patients with cholelithiasis than in those with peptic ulcer. In most of the tests there was a greater percentage of positive reactions associated with the presence of parenchymal cell abnormalities than with their absence. In the individual case, however, no deduction regarding the parenchyma can be drawn from a positive reaction, since an appreciable number of positive reactions are associated with normal parenchymal cells. Information regarding function and biopsy evidence regarding morphology must be considered as separate items of diagnostic information, both of which should enter into the appraisal.

**Gastric Mucosa After Vagotomy.**—To evaluate the effect of vagotomy Asher made gastroscopic studies on 20 patients. Eight of the patients had transthoracic vagotomy only, and 12 had vagotomy with either pyloroplasty or gastroenterostomy. In the series there were 11 patients who had one or more preoperative gastroscopic examinations. Postoperative examinations were made at intervals of three to twelve months. In several cases, the postoperative examinations were repeated. Vagotomy produced definite changes in the gastric mucosa in three fourths of the patients. Hypertrophic gastritis often associated with superficial erosions was the change seen most frequently. It is felt that the changes which occur as a result of vagotomy influence the development of gastritis. These changes consist of: (a) altered circulation, (b) altered secretion of mucin together with dissociation of acid and mucin secretion and (c) altered motility. These changes perhaps reduce the resistance of the gastric mucosa to physical trauma. Thus it appears that the operation which primarily separates the gastric mucosa from psychic trauma makes it more susceptible to physical trauma.

## Journal of Bacteriology, Baltimore

**56**:259-378 (Sept.) 1948

Streptomyces Griseus (Krainsky) Waksman and Henrici. S. A. Waksman, H. Christine Reilly and D. A. Harris.—p. 259.
Respiration of Salmonella in Presence of Agglutinating Serum. J. O. Harris.—p. 271.
Effect of pH on Bacteriostatic Activity of Certain Nitrophenols. P. B. Cowles and I. M. Klotz.—p. 277.
Production, Assay, and Antibiotic Activity of Actidione, Antibiotic from Streptomyces Griseus. Alma J. Wiffen.—p. 283.
*Relationship of Varicella and Herpes Zoster: Electron Microscope Studies. G. Rake, H. Blank, L. L. Coriell and others.—p. 293.
Observations on Streptomyces Griseus: II. Nitrogen Sources for Growth and Streptomycin Production. E. L. Dulaney.—p. 305.
Studies on Physiology of Streptomycin-Producing Strain of Streptomyces Griseus on Proline Medium. H. B. Woodruff and Myrle Ruger. —p. 315.
Studies on Retention of Hexachlorophene (G-11) in Human Skin. W. J. Fahlberg, J. C. Swan and C. V. Seastone.—p. 323.
Anaerobic Formation of Fumaric Acid by Mold Rhizopus Nigricans. J. W. Foster and J. B. Davis.—p. 329.
Evaluation of Precursors for Penicillin G. K. Singh and M. J. Johnson.—p. 339.
Streptomycin-Dependent Bacteria in Identification of Streptomycin-Producing Microorganisms. R. J. Vanderlinde and D. Yegian.—p. 357.
Carbon Assimilation Tests for Classification of Yeasts. L. J. Wickerham and K. A. Burton.—p. 363.

**Electron Microscope Studies on Varicella and Herpes Zoster.**—Rake and his co-workers studied elementary bodies of varicella and herpes zoster viruses with the electron microscope In the vesicle fluid of the lesions of various clinical types of herpes zoster they found elementary bodies that resemble closely those found in varicella. These elementary bodies have been scanty in fluids withdrawn from twenty-four hours to six days after the first appearance of the rash. In 1 case in which fluid was obtained twelve hours after the appearance of the vesicles the elementary bodies were numerous. Fluid from this same crop of vesicles, withdrawn forty-eight hours later, showed few elementary bodies. In 1 instance vesicle fluid was examined from a case of herpes zoster that apparently initiated an outbreak of varicella. Fluid was also examined from 3 cases of varicella. Scanty but characteristic brick-shaped bodies were found in the fluid in all 4 cases.

## Journal of Experimental Medicine, New York

### 88:389-502 (Oct.) 1948

*Hypertensin in Systemic Blood of Animals with Experimental Renal Hypertension. F. Gollan, Evelyn Richardson and H. Goldblatt. —p. 389.

Studies on Proteolytic Enzyme in Human Plasma. III. Some Factors Controlling Rate of Fibrinolysis. O. D. Ratnoff.—p. 401.

Studies on Acute Disseminated Encephalomyelitis Produced Experimentally in Rhesus Monkeys. III. E. A. Kabat, A. Wolf and Ada E. Bezer.—p. 417.

Kinetic Studies on Immune Hemolysis. I. A Method. M. M. Mayer, C. C. Croft and Margaret M. Gray.—p. 427.

Production of Persistent Alteration in Influenza Virus by Lanthanum or Ultraviolet Irradiation. S. E. Björkman and F. L. Horsfall Jr. —p. 445.

Reactions Between Influenza Virus and Component of Allantoic Fluid. P. H. Hardy Jr. and F. L. Horsfall Jr.—p. 463.

Role of the "Wax" of the Tubercle Bacillus in Establishing Delayed Hypersensitivity. I. Hypersensitivity to Simple Chemical Substance, Picryl Chloride. S. Raffel and J. E. Forney.—p. 485.

**Hypertensin in Systemic Blood of Animals.**—Gollan and his co-workers eliminated the hypertensinase activity immediately after the withdrawal of the systemic blood of dogs by cooling the blood to 0 C. (32 F.). This was followed by immediate separation and precipitation of the plasma. By this procedure it becomes possible to detect any hypertensin present in the circulating blood at the time the specimen of blood is withdrawn. After the intravenous injection of 1 unit of renin into normal dogs, as much as 1 unit of a pressor substance was detected by this method in the plasma from 200 cc. of systemic blood. Large amounts of systemic blood pooled from several normal dogs did not contain detectable amounts of pressor substance. In experimental renal hypertension due to unilateral or bilateral constriction of the main renal arteries in dogs, a pressor substance was demonstrated in large amounts of systemic blood, corresponding to from one fifth to one third of the total blood volume. This was accomplished without the addition of hypertensinogen to enhance the action of the renin in the blood. In an animal weighing about 15 Kg. (33 pounds) with benign hypertension up to three months' duration, 3 to 5 units of this pressor substance are probably constantly circulating in the entire systemic blood. The pressor substance was also detected in a relatively small amount of renal vein blood from an ischemic kidney. In dogs weighing about 15 Kg. with experimental renal hypertension of the malignant type, from 15 to 25 units, or more, of the pressor substance are present in the entire circulating blood. The pressor substance which appears in the systemic blood of dogs with experimental renal hypertension, and of normal dogs after intravenous injection of renin, is destroyed by hypertensinase. The pressor substance from the systemic blood of dogs with experimental renal hypertension proved to have the same physiologic and chemical properties as hypertensin produced in vitro. It is therefore suggested that the name hypertensin be adopted for the pressor substance which causes experimental renal hypertension.

## Journal Industrial Hygiene & Toxicology, Baltimore

### 30:265-318 (Sept.) 1948

*Retention of Aerosol Particles in Human Respiratory Tract as Function of Particle Radius. I. B. Wilson and V. K. LaMer.—p. 265.

*Environmental Studies in Plants and Laboratories Using Beryllium: Acute Disease. M. Eisenbud, C. F. Berghout and L. T. Steadman. —p. 281.

*Protection Against Radiation Hazards and Maximum Allowable Exposure Values. K. Z. Morgan.—p. 286.

Radiation Hazards in Industry. C. R. Williams.—p. 294.

Determination of Thallium in Urine. H. H. Ackerman.—p. 300.

Mist Control with Addition Agents in Chrome Plating. L. Silverman and R. M. Thomson.—p. 303.

Toxicity of Dimethyl-, Diethyl-, and Diisopropyl Fluorophosphate Vapors. S. D. Silver.—p. 307.

Thermal Insulation and Comfort Characteristics of Fibrous Glass-Lined Garments. C. P. Yaglou.—p. 312.

**Retention of Aerosol Particles in Respiratory Tract.**—Wilson and LaMer studied the retention of aerosol particles in the human respiratory tract as a function of particle radius and breathing rate, using monodispersed aerosols (uniform particle size) of glycerol and water containing a trace of radioactive sodium. Seven subjects inhaled the aerosol. "Alveolar retention" (smaller bronchi, bronchioles and alveoli) has been distinguished from total retention by the use of radioactive tracer technics. The aerosol was produced by condensation of glycerol vapor on sodium chloride nuclei containing the tracer element. Particle size was measured by means of the higher order Tyndall spectrums calibrated in terms of sedimentation rate. Data are presented for breathing rates from 5½ to 20 cycles per minute. The retention decreases linearly with increasing breathing. Relative alveolar retentions, which were measured with a Geiger-Müller counter placed in the axillary region, showed dependence on particle size. The alveolar retention exhibits a maximum with two peaks in the range 0.3 micron to 1.0 micron in radius. Maximum alveolar retention appears to be of the order of 45 per cent of the inhaled aerosol. The selection of aerosols in this range of particle size is indicated for maximum "alveolar retention" of therapeutic aerosols.

**Environmental Studies in Plants Using Beryllium.**—Eisenbud and his co-workers say that cases of disturbances resulting from the industrial use of beryllium have been reported from plants processing the ore, from plants manufacturing fluorescent lamps, among employees using beryllium oxide for ceramics purposes and among another group working with pure beryllium metal in a machine shop. The investigations here reported were conducted in all three of the American plants producing beryllium compounds from the ore and in a number of laboratories and shops engaged in research in the ceramics and metallurgy of beryllium. Over 500 air samples have been collected on filter paper and analyzed spectrographically. The compounds studied were beryllium sulfate, oxide, fluoride, hydroxide, metallic dust and beryl. Those shown to cause acute pneumonitis are the sulfate, fluoride, oxide and metallic dust. The hydroxide is thought to be capable of producing the acute disease due to its similarity to the oxide; this was not demonstrated conclusively, because no workers were found who had been exposed exclusively to the hydroxide. Beryl was not found to cause acute toxicity. The toxicity of the oxide appears to vary depending on particle size, surface area and temperature of processing. Many cases of acute disease have resulted from a single excessive exposure. An exposure of twenty minutes to the fluoride is known to have produced three cases of acute pneumonitis.

**Protection Against Radiation Hazards.**—Morgan says that the men who were responsible for the planning of the Plutonium Projects were forced to face the unpleasant picture of the past history of man's carelessness with regard to exposure to radiation. They were resolved to do the job safely. A Health Physics Division was created which was composed of physicists, chemists and engineers who have made a study of radiation and have developed means of preventing radiation damage to persons engaged in atomic energy operations. It seems that the tolerance level of 0.1 r per day chosen five years ago for the Plutonium Projects is not as low as it should be. A recent analysis of some of the personnel radiation exposure records indicates that no employee is averaging more than 0.02 r per day. The projects have been concerned with exposures, not only to roentgen and gamma rays, but also to alpha, beta and neutron. Many precautions have been taken against excessive radiation exposure. Concrete walls, 6 feet (182.9 cm.) in thickness, are built around the pile to protect persons from intense neutron and gamma radiation. Radiating objects are withdrawn from the pile with long rods and the "hot" objects are pushed into lead coffins or dropped into a deep water canal. Chemical operations on radioactive materials are done behind shields. All the water and air discharged from the Plutonium Projects is checked constantly to make certain that the concentration of radioisotopes does not reach tolerance. The working areas are monitored constantly to see that the level of radiation is below tolerance. The best criterion of the success of this program is that to the present no one of the thousands of persons engaged on these Plutonium Projects and no one in the neighborhood of these projects has received any radiation damage.

## Journal of Investigative Dermatology, Baltimore

**11:**155-224 (Sept.) 1948

Eczematous Contact-Type Allergy to Pyribenzamine. M. J. Strauss. —p. 155.
Studies on Role of Copper in Mammalian Pigmentation: Preliminary Report. P. Flesch.—p. 157.
Use of Diffusion Rates in Evaluating Ointment Vehicles for Antibacterial Therapy. H. E. C. Zheutlin and C. L. Fox Jr.—p. 161.
Cutaneous Complications of Mass Vaccination in New York City, 1947 (Part II). Helen O. Curth, W. Curth and J. Garb.—p. 167.
*Hereditary Multiple Benign Cystic Epithelioma. M. T. Fliegelman and W. T. Kruse.—p. 189.
Dermatitis Due to Invisible Ink: Report of Case. D. Bloom and M. A. Weiner.—p. 197.
The Allergen of Human Dander: Its Relative Concentration in Several Skin Areas and in Appendages, Products and Derivatives of Epidermis. F. A. Simon.—p. 203.
Bone Marrow as Diagnostic Aid in Acute Disseminated Lupus Erythematosus: Report on Hargraves' "L. E." Cell. J. R. Haserick and R. Dorothy Sundberg.—p. 209.
Onychomycosis Caused by Aspergillus Terreus. M. Moore and R. S. Weiss.—p. 215.

**Hereditary Multiple Benign Cystic Epithelioma.**—According to Fliegelman and Kruse multiple benign cystic epithelioma is characterized by multiple, small, firm, often translucent, slightly coalescent tumors which show a decided predilection for the nasolabial folds, base of the nose, forehead, eyelids and about the ears; only occasionally are they found on the scalp, neck and upper part of the chest. The tumors are from a pinhead to a pea in size and usually are of normal skin color. They are often symmetrically distributed and show little or no tendency to ulcerate or to undergo malignant change. The lesions may remain stationary for a long time, then suddenly increase in both size and number. The disease is often hereditary. The authors present observations on a family group of which 22 members were examined and 8 were found to have multiple benign cystic epithelioma. Two more were reported to have the same disorder. The average age of onset in the 7 affected members of one sibship was found to be 11.5 years (9 to 17 years). There may be an association of café-au-lait-like spots with multiple benign cystic epithelioma. This study brought to light an Rh-negative mother who has had 11 Rh-positive children without a single instance of erythroblastosis.

## Journal National Malaria Society, Columbia, S. C.

**7:**167-240 (Sept.) 1948

Blueprint for Malaria Eradication in the United States. J. M. Andrews and W. E. Gilbertson.—p. 167.
Studies on Imported Malarias: X. Evaluation of Foreign Malarias Introduced into the United States by Returning Troops. M. D. Young, D. E. Eyles and R. W. Burgess.—p. 171.
Ducks as Mosquito Predators. O. K. Fletcher Jr.—p. 186.
Review of Current Georgia Malaria Control Operations. L. G. Lenert and W. A. Legwen.—p. 187.
*Effects of Routine DDT Mosquito Larviciding on Wildlife. C. M. Tarzwell.—p. 199.
New Species of Protozoa Met with in Salivary Glands of A. culicifacies, Giles, in Course of Routine Malaria Survey—Trypanosoma kalwanesis Viswanathan and Bhatt (1948). D. K. Viswanathan and H. R. Bhatt.—p. 207.
Influence of Moon on Light Trap Collections of Anopheles Albimanus in Puerto Rico. H. D. Pratt.—p. 212.
Airplane Distribution of Insecticides and Herbicides for Malaria Control. H. B. Seaton and L. K. Cutkomp.—p. 221.

**Effect of Mosquito Larvicide on Wild Life.**—Preliminary tests with DDT (dichlorodiphenyltrichloroethane) as a larvicide for the control of Anopheles quadrimaculatus mosquitoes demonstrated that this insecticide was toxic to fish and other forms of aquatic life. The U. S. Public Health Service, therefore, deemed it advisable to determine the over-all effects. Tarzwell describes the procedures employed and the results obtained. As a dust, routine applications of DDT caused little apparent damage to surface organisms. DDT dusts can be applied routinely at dosages of 0.1 pound (45.4 Gm.) per acre with little or no significant harm to wild life. Tight emulsions of DDT are more toxic to wild life than DDT fuel oil solutions. Routine treatments with fuel oil DDT solutions at dosages of 0.1 or 0.05 pound per acre generally kill large numbers of fish after the tenth treatment and with continued use greatly reduce the population of fish and fish food organisms. Routine treatments at discharge rates of 0.1 pound of DDT per acre had no significant effects on the reptile and amphibian populations. The natural driftage of DDT sprays and aerosols from water areas onto surrounding terrestrial areas had no harmful effects on bird and mammal populations during one season's treatments. No catastrophic or significant changes were produced in the terrestrial insect populations. Such treatments did not impair the strength of bee hives located on adjoining areas or decrease their production of honey. Routine treatments at discharge rates of 0.1 pound of DDT per acre as sprays or aerosols do not significantly change the populations of surface insects during one season's treatment. Although routine airplane treatments over a period of two years produced some fish kill, the total fish population was not changed and production in pounds per acre remained about constant. Routine airplane larvicide at discharge rates of 0.1 pound of DDT per acre is not significantly harmful to wild life at least during the first two years of treatment.

## Journal of Neurophysiology, Springfield, Ill.

**11:**401-470 (Sept.) 1948. **Partial Index**

Inhibitory Action on Motor Nucleus and Focal Potentials Generated Therein. C. McC. Brooks and J. C. Eccles.—p. 401.
Anatomic Considerations of Monosynaptic Reflex Arcs. J. Szentágothai. —p. 445.
Analysis of Forelimb-Hindlimb Reflex Activity in Acutely Decapitate Cats. D. P. C. Lloyd and A. K. McIntyre.—p. 455.

## Journal of Thoracic Surgery, St. Louis

**17:**573-722 (Oct.) 1948

*Primary Pulmonary Malignancy: Factors Influencing Survival. A. Ochsner, M. DeBakey, C. E. Dunlap and I. Richman.—p. 573.
Congenital Tracheoesophageal Fistula Without Esophageal Atresia. C. Haight.—p. 600.
*Spontaneous Rupture of Esophagus. T. J. Kinsella, R. W. Morse and A. J. Hertzog.—p. 613.
Spontaneous Rupture of Esophagus: Report of One Case, with Recovery. J. A. Moore and J. D. Murphy.—p. 632.
Diverticula of the Thoracic Esophagus. H. D. Adams.—p. 639.
Tuberculosis and Pregnancy: Analysis of One Hundred Eighteen Cases. H. E. Johnson, J. C. Burch, D. S. Bayer and G. S. McClellan. —p. 646.
Spontaneous Collapse. P. D. Crimm.—p. 662.
Method of Bronchial Occlusion for Prevention of Transbronchial Spread During Lobectomy and Pneumonectomy: Clinical Application. J. D. Moody.—p. 681.
Primary Rib Tumors: Survey of Literature and Report of Seven Additional Cases. R. A. Dorner and D. S. Marcy.—p. 690.
Cavernous Angioma of Right Lung. I. Boerema and R. P. Brilman. —p. 705.
Anoxia During Intrathoracic Operations: Preliminary Report. F. G. Kergin, D. M. Bean and W. Paul.—p. 709.
Anomalous Pulmonary Vessels. R. Douglass.—p. 712.
Ectopia Cordis: Report of Case with Atttempted Operative Correction. F. Byron.—p. 717.

**Primary Pulmonary Cancer.**—Ochsner and his co-workers report 548 patients with primary pulmonary cancer who were admitted to hospital during the period of 1934 to 1948. One hundred and ninety-four (35.4 per cent) had inoperable lesions, 47 (8.5 per cent) refused operation and 307 (56.1 per cent) had exploration. The lesion was found to be resectable in 195 of the 307 patients (35.6 per cent). One hundred and sixty-three of these were male and 27 female. Positive results of bronchoscopic biopsy were obtained in only 74 (37.9 per cent) of the 195 patients with resection. This illustrates the diagnostic limitation of bronchoscopy and emphasizes the importance of exploration when all diagnostic methods yield only presumptive evidence of carcinoma. Forty-five of the 195 patients died at the hospital. Of the resections, 136 (70 per cent) were considered palliative rather than curative, since the lesions had extended beyond the confines of the lung. The gross survival rate after resection was 20 per cent at the end of three years, with little change up to five years thereafter. The survival rate in curative resections was considerably better than in the palliative group, but even in the latter a 10 per cent three year survival rate was observed. No patient survived three years among the cases in which resection was not performed. Lesions in the right lung had a higher fatality rate than in the left lung. Epidermoid and undifferentiated carcinomas occurred in a higher proportion in the older age groups than did adenocarcinomas. The distribution of histologic type was about equal among the younger age group. With increasing age at the time of operation there was a progressive increase in fatality, with a sharp increase in fatality in patients operated on after the age of 60. The most frequent type of tumor in men was epidermoid carcinoma, whereas in women it was adenocarcinoma. The survival rate over a five year period was consistently more favorable in women. The most favorable survival rate was found in patients with the epidermoid carcinoma and the poorest in those with undifferentiated carcinoma. Histologic grading of epidermoid and adenocarcinoma showed a good correlation with fatality. Among the undifferentiated carcinomas the small cell and oat cell tumors carried the lowest fatality and the large round-cell and clear-cell tumors the highest.

**Spontaneous Rupture of Esophagus.**—Kinsella and his co-workers report 5 cases of spontaneous rupture of the esophagus in 4 men between the ages of 67 and 74 and in an adolescent aged 16. All patients died. The correct diagnosis was made in 3 of the patients during life. One of the 3 was seen two weeks after the onset and in no condition for surgical intervention; in the second, surgical intervention was immediately considered but postponed because of the patient's grave condition in the fallacious hope that the condition might improve sufficiently to permit thoracotomy and repair. In the third patient open posterior thoracotomy was performed with the patient under intratracheal anesthesia with removal of food and stomach contents from the pleural cavity, a wide opening of the mediastinum and removal of food particles and fluid from it, followed by exposure of the ruptured area of the esophagus and closure of the perforation with nonabsorbable silk sutures. The patient survived nine days, but death resulted from pulmonary embolism. Spontaneous perforation of the lower part of the esophagus into the mediastinum or pleural cavity is always extremely grave. It would seem clinically that the early deaths must result from shock and tension pneumothorax; the later deaths apparently result from mediastinitis and pleural sepsis as well as from mechanical factors. Pain, collapse, vomiting, hydropneumothorax and emphysema should permit a diagnosis on historical and physical grounds alone in the majority of instances if the clinician is cognizant of the presence of such a condition. Early diagnosis, prompt surgical repair and proper postoperative treatment may be expected to save a considerable number of these patients from an otherwise certain fatal termination.

## Journal of Urology, Baltimore

60:363-542 (Sept.) 1948

Nonhormonal Adrenal Cortical Carcinoma: Report of Case with 5 Year Survival and Relief of Hypertension. Z. R. Cottler.—p. 363.

*Management of Injured Kidney: Preliminary Report. K. M. Lynch Jr. —p. 371.

*Major Urologic Surgery on Poliomyelitic Patients Confined to Respirators; Discussion on Etiology, Prophylaxis Against and Treatment of *Calculi in Recumbent Patients. L. Brady and W. J. Wilson.—p. 381.*

Metastases to Endometrium and Skin from Carcinoma of Kidney: Report of Case and Review of Literature. M. Ratner and C. Schneiderman. —p. 389.

Pyelitis Glandularis. G. L. Torassa Jr.—p. 393.

Unusual Ureterograms in Case of Periarteritis Nodosa. R. S. Fisher and H. H. Howard.—p. 398.

Primary Benign Neoplasm of Ureter. J. M. Edelstein and S. M. Marcus. —p. 409.

Direct Manipulation of Ureteral Stones Through Urethra. W. M. Coppridge, L. C. Roberts and R. G. Rosser Jr.—p. 418.

Improved Pyelographic Results in Uretero-Intestinal Anastomosis. M. Schnittman.—p. 421.

Carcinoma of *Urinary Bladder: Pathologic Study with Special Reference* to Invasiveness and Vascular Invasion. J. R. McDonald and G. J. Thompson.—p. 435.

Cystitis Glandularis: Consideration of Symptoms, Diagnosis and Clinical Course of the Disease. H. R. Sauer and M. S. Blick.—p. 446.

Transurethral Resection of Vesical Neck in Infants and Children. J. L. Emmett and H. F. Helmholz.—p. 463.

Urologic Problems of Spinal Cord Injury. D. J. Abramson.—p. 479.

Transvesical Repair of Vesico Vaginal Fistula. W. N. Taylor.—p. 488.

Air Bubbles in Prostatic Resection. O. A. Nelson.—p. 493.

Complete Occlusion of Vesical Orifice Following Suprapubic Prostatectomy: Review of Literature and Report of 3 Cases. A. E. Goldstein and S. W. Rubin.—p. 499.

Epithelioma of Scrotum. A. L. Dean.—p. 508.

Significance of Gonadotropic Hormones in Urine of Patients with Testicular Tumors. V. Vermooten and W. F. Hettler.—p. 519.

Results of Streptomycin Treatment of 14 Cases of Urinary Infections. C. Mrazek.—p. 524.

**Management of Injured Kidney.**—Lynch says that of 23 patients with renal injury admitted to the Charlotte Memorial Hospital, 13 had injuries classified as ruptures, 1 a stab wound and the remaining 9 contusions. Eleven of the 23 persons were injured in vehicular accidents, 7 in industrial accidents, 3 in athletics and 2 by weapons. All patients with acute ruptures of the kidney complained of severe pain and tenderness and rigidity of the flank, and about a third had a palpable mass. All of the 23 patients presented hematuria, 21 of them gross and 2 microscopic. In the 2 with microscopic hematuria the injury was classified as contusion, but mild or microscopic hematuria does not necessarily indicate a mild lesion, for a complete rupture of the vascular pedicle may result in no hematuria at all until the process of infarction begins. Seven of the 23 patients were operated on. Nephrectomy was performed in 4 cases, 2 injuries were evacuated of blood clots and drained, and in 1 case the rupture was repaired and drained. Six patients with rupture were not operated on; 1 of these expired of shock. Intravenous urography and retrograde pyelography are urged for complete and accurate evaluation of suspected renal injury. Exploration is advocated in all cases in which there is extravasation of intravenous or retrograde dye or obliteration of the renal and psoas shadows. The end of seventy-two hours is set as the ideal time to explore the kidney providing severe hemorrhage and shock do not require immediate operation. The ruptured kidney which is not explored, removed, repaired or drained is subject to a number of sequelae: secondary hemorrhage, extravasation of urine, infection, hydronephrosis, calculous formation and calcified cysts of the kidney. While the majority of injuries of the kidney heal spontaneously, the organ may later become functionless. The renal substance may heal but does so with the formation of a dense scar, so that a considerable portion of secretory tissue may be destroyed or a part of the kidney may suffer from insufficient blood supply. Cyst formation occurs in some, and some patients remain in poor health until a nephrectomy is done.

**Major Urologic Surgery on Patients in Respirators.**—Brady and Wilson believe that the 2 patients whose histories they present are the first to be taken directly from the "iron lung" to the operating room and to survive major urologic surgical treatment. A ureterotomy for calculi was performed on 1 of the patients; on the second, a ureterotomy for calculi and a nephrectomy. Both of these patients were anesthetized for fifty minutes. It would have been difficult to perform these operations if the patients had not been in an institution where there are respirators which can be taken directly to the operating room. The 2 patients were adult sisters in whom the bulbar-spinal type of anterior poliomyelitis developed within one week, and both were later operated on for stones in the urinary tract. Chemical analysis of the stones removed from 1 patient showed just a trace of calcium. In those from the second, not even a trace was present. This indicates that in these 2 women decalcification of the bones and excessive calcium intake played no part in the development of the calculi. The authors believe that the immobilization with defective drainage of some or all of the calices probably plays the most important role in the development of stones in recumbent patients. The 8 patients now in respirators at the authors' hospital have had negative roentgenograms with the exception of 1 girl, who has some gravel in one of the calices of the right kidney. Since she recently has been able to be out of the respirator for hours at a time, it is hoped that she will pass this, or attempts will be made to dissolve the calcareous material with solution G. Measures taken to reduce the likelihood of formation of calcareous material in those who have to be in respirators include a daily fluid intake of at least 3,000 cc.; only a glass of milk a day is permitted. Citrus fruits are given in only moderate amounts. Alkaline drugs such as sodium bicarbonate or alkaline saline cathartics are not used. The first morning specimen of urine is tested with nitrazine paper. If it is alkaline, ammonium chloride is prescribed for twenty-four to forty-eight hours. The reason for keeping the urine acid is that most of the stones in recumbent patients are made up of phosphates. Complaints of frequency of urination or dysuria are investigated promptly. When infection develops, sulfathiazole or sulfadiazine is prescribed, but never for more than one week at a time. When renal colic or pain in the flanks is complained of, roentgenograms are taken. Routine roentgenograms are taken at regular intervals. Frequent change in posture is of great importance in preventing formation of stones in recumbent patients.

## Medical Annals of District of Columbia, Washington

### **17:**485-546 (Sept.) 1948

Cranioplasty: A Technic with Tantalum. O. H. Fulcher.—p. 485.
The Infectious Hepatidites. H. J. Zimmerman.—p. 493.
One Challenge of American Youth. G. E. Gardner.—p. 499.
Integration of Cancer Care. C. T. Klopp.—p. 505.

### **17:**547-604 (Oct.) 1948

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Extraperitoneal Cesarean Section (Norton Type). G. J. Ellis, J. B. Sheffery and Jean Paquin.—p. 553.
Bilateral Sympathetic Dystrophy: Report of Case. I. S. Cooper.—p. 555.
Insufflation of Posterior Pituitary Powder in Childhood Diabetes Insipidus: Report of Case. D. Feriozi and F. Schneider.—p. 557.
Symposium on Wilms' Tumor. W. F. Burdick, W. D. Jarman, D. J. Judge and others.—p. 559.

## Medicine, Baltimore

### **27:**243-376 (Sept.) 1948

Pulmonary Insufficiency: I. Physiologic Classification, Clinical Methods of Analysis, Standard Values in Normal Subjects. Eleanor deF. Baldwin, A. Cournand and D. W. Richards Jr.—p. 243.
Infectious Hepatitis. W. P. Havens Jr.—p. 279.
Pharmacology, Mode of Action and Therapeutic Potentialities of Stilbamidine, Pentamidine, Propamidine and Other Aromatic Diamidines—A Review. E. B. Schoenbach and E. M. Greenspan.—p. 327.

## Military Surgeon, Washington, D. C.

### **103:**251-334 (Oct.) 1948. Partial Index

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Traumatic Rupture of Thoracic Aorta: Report of Case. B. H. Henning and A. R. Agmar.—p. 260.
Complete Heart Block with Stokes-Adams Syndrome: Case Report. H. F. DeFeo.—p. 265.
Sickle Cell Anemia: Sickle Cell-Accelerating Factor and Its Relationship to Lysozyme. R. deRohan Barondes and T. J. Kane.—p. 271.
Early Evaluation of Blast Injury: Report of Cases. H. A. Burnett.—p. 275.
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## Missouri State Medical Assn. Journal, St. Louis

### **45:**707-784 (Oct.) 1948

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Obstetric and Gynecologic Aspects. K. E. Cox.—p. 737.
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Acute Hematogenous Osteomyelitis: End Result Study of Nonsurgical Treatment with Penicillin and Sulfonamides. R. M. O'Brien and J. J. Mira.—p. 754.
Onycholysis: Preliminary Report of Cases Following Use of Fingernail Base Coat. T. F. B. Darnell and F. P. Coombs.—p. 758.
Mediastinal Emphysema and Bilateral Pneumothorax Complicating Operations on Neck. H. M. Wiley and E. D. Sugarbaker.—p. 760.

## New England Journal of Medicine, Boston

### **239:**531-564 (Oct. 7) 1948

*Use of Rice Diet in Treatment of Hypertension in Nonhospitalized Patients. A. W. Contratto and Miriam B. Rogers.—p. 531.
Thyroid Therapy in Gynecologic Abnormalities. C. L. Buxton and F. H. Vann.—p. 536.
*Traumatic Partial Lobectomy from Gunshot Wound: Report of Case with Recovery and Personality Change. E. M. Holmes.—p. 539.
Infectious Mononucleosis with Psychosis: Report of Case. R. W. Raymond and R. L. Williams.—p. 542.
Blood and Its Derivatives. S. T. Gibson.—p. 544.
Tubal Pregnancy.—p. 556.
Actinomycosis of Chest Wall.—p. 558.

**Rice Diet in Hypertension.**—Contratto and Rogers report a six month study of a group of nonhospitalized patients with hypertension who were treated with the rice diet. Of 55 patients, 34 cooperated and were considered satisfactory for evaluation. Each patient received a copy of the rice diet, as devised by Kempner, which contains in 2,000 calories not more than 5 Gm. of fat and about 20 Gm. of protein derived from rice and fruit and not more than 200 mg. of chloride and 150 mg. of sodium. A patient takes an average of 250 to 350 Gm. of rice (dry weight) daily. All fruit juices and fruits are allowed, with the exception of nuts, dates, avocados and any dried or canned fruit or fruit derivatives to which substances other than white sugar have been added. Usually no water is given and the fluid intake is limited to 700 to 1,000 cc. of fruit juice per day. Multiple vitamins were added. The diet was gradually modified for patients whose blood pressure readings dropped satisfactorily. The first modification was the addition of one egg once a week, half a cup of nonleguminous vegetables (carrots, broccoli, celery, cabbage, asparagus, beets, spinach and so forth), boiled without salt, once a day and, if desired, a cup of coffee or tea once a day, with sugar, but without milk or cream; no salt or fat was included in any of the modifications. The patient stayed on this regimen for two weeks to a month. If the blood pressure readings were satisfactory, 4 ounces of lean meat, fish, liver or chicken three times weekly was added to the diet, the egg being taken three times a week and the nonleguminous vegetable once a day. The meat or fish was boiled or broiled, without salt or salt-containing substances. The rice diet has been found to be a practical, inexpensive and simple method for reducing blood pressure.

**Lobectomy from Gunshot Wound.**—Holmes reports the case of a woman who had a pyramiding depression which terminated in a suicidal attempt, which she executed by holding a 12 gage shotgun under her chin and pulling the trigger. She was found in an unconscious state with a hole of entry in the midline of her chin about 1.5 cm. behind the symphysis. The hole carried up through the tongue, continued through the hard palate, the perpendicular plate of the ethmoid, both nasal bones, the frontal sinuses and part of the frontal bone as far as the hairline. After debridement and the use of penicillin, the patient gradually recovered. A psychiatrist believed that the patient was perfectly oriented, without a psychosis, and that she probably performed a partial anterior lobectomy, which had cured her pyramiding depression. Numerous corrective operations were carried out, of which the patient was most appreciative. She has resumed her place in her community. The author cites the famous crow bar-skull case, in which the head injury was similar to that in this woman. That patient, a miner, also recovered, and the chief residual lesion was a changed personality.

## New Orleans Medical and Surgical Journal

### **101:**141-198 (Oct.) 1948

#### SYMPOSIUM ON HYPERTENSION

Application of Fundamental Knowledge to Clinical Problem of Hypertension. R. Gregory.—p. 141.
Surgical Treatment of Hypertension. L. J. O'Neil.—p. 155.
Use of Drugs in Treatment of Hypertension. M. E. St. Martin.—p. 156.

#### SYMPOSIUM ON EYE, EAR, NOSE AND THROAT

What is New in Ophthalmology. C. A. Bahn.—p. 161.
Malignant Tumors of Nasopharynx. M. G. Lynch.—p. 165.
Ménière's Disease; Its Treatment. J. B. Farrior.—p. 168.
Fenestration Operation; Analysis of Results. J. B. Farrior.—p. 169.

## New York State Journal of Medicine, New York

### **48:**1983-2094 (Sept. 15) 1948

Survey of Ragweed Pollination in New York Metropolitan District in 1947. E. H. Walzer, B. B. Siegel, R. A. Chait and M. Walzer.—p. 2019.
*Streptomycin in Dermatology: Its Value and Limitations. F. C. Combes, O. Canizares, H. Shatin and C. Kaufman.—p. 2024.
Teeth and Skin Diseases. G. C. Andrews, A. N. Domonkos and M. E. Hopper.—p. 2029.
Contact Dermatitis from Beetles, with Report of Case Due to Carpet Beetle (Anthrenus Scrophulariae). F. E. Cormia and G. M. Lewis.—p. 2037.
Permanent Camouflage of Port-Wine Stain of Face by Intradermal Injection of Insoluble Pigments (Tattooing). H. Conway.—p. 2040.
Practical Application of Local Heat. J. D. Currence.—p. 2044.
Aminophyllin Determination of Circulation Time. L. Friedfeld, H. R. Marcus and J. J. Vorzimer.—p. 2047.

**Streptomycin in Dermatology.**—Combes and his associates cite reports and their own observations on the value of streptomycin in dermatologic conditions. Streptomycin is the antibiotic of choice in granuloma inguinale, tularemia and cutaneous infections due to Pseudomonas aeruginosa (B. pyocyaneus). It is of definite value in tuberculosis colliquativa, tuberculosis orificialis, chancroid, gonorrheal infections, infectious eczematoid dermatitis and cutaneous infections in which other antibiotics have failed or the patient presents an idiosyncrasy. It may benefit other forms of cutaneous tuberculosis, rhinoscleroma and leprosy. Systemic toxic reactions are not rare and may be serious but usually appear after weeks of therapy. Vertigo due to labyrinthine disturbances is not uncommon and may be annoying and permanent. Cutaneous reactions are of three types: (1) an early polymorphous biotropic type of exanthema appearing before the tenth day which responds to antihistaminics and does not require cessation of therapy; (2) an exfoliative dermatitis, appearing after many weeks of therapy and necessitating cessation of therapy, and (3) a troublesome contact dermatitis of high incidence, especially in nurses continually in contact with the drug over long periods, which necessitates the wearing of rubber gloves, frequent rotation of nurses or removal from further contact.

## Occupational Medicine, Chicago

### 5:249-342 (March) 1948

Pathologic Aspects of Occupational Tumors. S. Warren.—p. 249.
Administration of Industrial Nutrition Program. R. S. Goodhart.—p. 252.
*Selective Placement of Workers in Industry. O. A. Sander.—p. 256.
Health and Welfare in Ladies' Garment Industry. F. F. Umhey.—p. 260.
*Health and Welfare Funds: Their Implications to Medicine. L. Price.—p. 268.
Vision on the Job; with Particular Reference to Maintenance. G. D. Clayton and H J. Paulus.—p. 278.
Industry Needs Medicine and Vice Versa. S. B. Black.—p. 285.
Essential Correlations Between Medicine and Industrial Research. A. J. Vorwald.—p. 292.

**Selective Placement of Industrial Workers.**—Sander asserts that now that the labor supply again is becoming more plentiful, a tendency to return to the prewar standards of overcareful selection of workers is beginning to appear. Experience in examining more than 50,000 workers in various industries has convinced him and his colleagues that outright rejection of more than 2 per cent of examinees is an unnecessary waste of man power. In one organization, which has plants in sixteen states, the rates of rejection varied from 0.5 to 20 per cent. Almost without exception, the high rates of rejection occurred in states in which compensation was being allowed for all varieties of alleged aggravation of preexisting disabilities and nondisabling defects. Another factor which tends to prevent the carrying out of true preplacement examinations is the rigid seniority rule of some labor unions. In one plant it was impossible to hire any one not able to do the heaviest kind of physical work, because everyone hired was required to start on such heavy laboring jobs. Another factor which has prevented the hiring of many workers with minor defects is the lack of funds for second injuries in most states. In such states, a man with only one good eye usually is rejected for most jobs, because, should he lose the good eye, the employer is liable for compensation for total blindness. Only three factors need consideration in the placement of a new worker at a job: (1) ability of the person to do the work, (2) safety of the job as related to the prospective employee's disability or handicap and (3) health of the prospective employee, for his own protection and that of the other employees.

**Implications of Health and Welfare Funds.**—Price believes that health and welfare funds may have a profound influence on the medicine of the future. Industry, labor, legislators and physicians have developed different plans to fit the need for health protection. The fact that each group concerned has a different approach indicates that the problem requires careful study. In the past, progress in providing some medical insurance and service has been achieved by many agencies. Enlisting subscribers for prepaid services has met resistance, but today there appears a highly organized clientele of millions of trade unionists, with huge cash reserves, ready and anxious to purchase health insurance and service. Are there enough physicians, properly oriented and trained, to serve this group? Industrial medicine has made strides in the departments of preventive medicine and public health. Industrial medical training is being developed more and more through undergraduate and postgraduate courses. Health and welfare programs will need the services of such physicians. Medical service will improve production as well as provide the workers with more health security.

## Philippine Medical Association Journal, Manila

### 24:351-406 (July) 1948

Occupational Dermatoses in Philippines. J. S. Santillan and A. G. Hernandez.—p. 351.
Management of Urticaria. A. L. Quintos.—p. 357.
Cultivation of Neisseria Gonorrhea: I. Comparative Study of Smear and Cultural Methods of Laboratory Diagnosis. A. P. De Roda and D. Caro.—p. 363.

## Union Médicale du Canada, Montreal

### 77:1159-1274 (Oct.) 1948. Partial Index

*First Therapeutic Trials for Bulbospinal Myasthenia (Erb-Goldflam's Disease) by Sinus Caroticus Enervation. A. Thévenard and L. Léger.—p. 1174.
Future of Canadian-French Medicine. J. Genest.—p. 1187.
Some Remarks on Various Forms of Syndrome of Cauda Equina: Spasmodic Form Resulting from Distant Trauma, Form with Talipes Cavus. L. Rougués.—p. 1197.
Küntscher's Nail for Diaphyseal Fracture of the Femur. M. Fortier.—p. 1204.
Osteoporosis Associated with Pain. V. Laperrière.—p. 1210.

**Treatment of Bulbospinal Myasthenia.**—Thévenard and Léger treated 5 patients, 2 women aged 45 and 18, and 3 men aged 23, 46 and 55 respectively, with bulbospinal myasthenia gravis of two months' to eight years' duration, by denervation of the sinus caroticus. Surgical intervention was done with the patient under local anesthesia with procaine hydrochloride solution following basal anesthesia. The preoperative treatment consisted of ten days of rest in bed during which the optimum dose of neostigmine was determined. This dose and the rhythm of its fractional administration vary with every patient, and general posologic rules cannot be given. Subcutaneous administration of the drug seems to be preferable. The optimum dose of the drug should be increased on the day of the intervention and for the first forty-eight postoperative hours. The younger woman was the only one of the 5 patients to whom neostigmine was not given before the intervention, and she was also the only one in whom a grave respiratory disturbance occurred within eighteen hours after the intervention requiring administration of massive doses of neostigmine and sojourn in the iron lung for sixty-six hours. In 4 patients bilateral denervation of the sinus caroticus was performed at one month interval between the two interventions; unilateral intervention was performed in only 1 patient with a purely ophthalmoplegic syndrome, which is to be considered as a benign form or as a still favorable stage of the disease. The term "sthenic effect" has been coined to describe the favorable results of this surgical treatment on all the clinical manifestations of Erb-Goldflam's myasthenia. The localized muscular disturbances of paralytic appearance subsided completely or were improved considerably. There was much less tiring of the voluntary muscles, the nasal quality of the voice was corrected and the disturbances of deglutition and mastication subsided. Two patients could resume their physical activity, and the patient aged 23 was enabled to perform a march of 5 miles without fatigue. The severe preoperative respiratory disturbances in 2 patients did not recur for four years and sixteen months, respectively, after the intervention. The sthenic effect was manifested between the second and the thirtieth postoperative day, and it was progressive during the follow-up period of two months to four years; in only 1 patient was the manifestation of the sthenic effect delayed for three months after the second intervention. Early intervention and the patient's youth are two factors which favor a satisfactory postoperative prognosis. The concept that denervation of the sinus caroticus may produce hyperfunction of the adrenal cortex was not confirmed. That the doses of neostigmine required could be reduced considerably after the intervention suggests that the intervention is the active element in the combined treatment.

## FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

### Annals of Rheumatic Diseases, London

7:127-194 (Sept.) 1948

- Idiopathic Extreme Osteoporosis, Especially of Spinal Column and Thoracic Cage, with Collapse of Front of Chest H. C. Lauber, F. P. Weber and J. G. Greenfield.—p. 127.
- Muscle Histology in Rheumatic and Control Cases: Study of One Hundred and Nineteen Biopsy Specimens. M. H. L. Desmarais, H. J. Gibson and G. D. Kersley.—p. 132.
- *BAL *in Treatment of Gold* Toxicity. J. G. Macleod.—p. 143.
- Occurrence of Neuropathic Arthropathies in Pernicious Anemia. P. I. Halonen and K. A. J. Jarvinen—p. 152
- Palindromic Rheumatism. S. A. Wolfson and M. S. Alter.—p. 159.
- Gross Anatomy of Peri-Articular Tissues of Shoulder Joint. W. J. H. Nauta and J. M. F. Landsmeer.—p. 164.
- Check on Anatomic Accuracy of Intra-Articular Hip Injections in Relation to Therapy of Coxarthritis. Marjorie M. Dobson—p. 172.
- Problem of Arthritis in Switzerland. A. Boni.—p. 175.

**BAL for Toxic Effects of Gold Therapy.**—Macleod reviews reports on BAL (2,3-dimercaptopropanol) with particular reference to its use in patients who had toxic reactions from gold therapy and reports 15 such cases. He gained the impression that BAL is of value in the treatment of these patients. In dermatitis the immediate improvement in the pruritus is a constant feature, and the course of the eruption is probably influenced in a favorable manner. BAL is also effective in the treatment of stomatitis and hepatitis due to gold. Toxic effects are minimal in doses up to 4 mg. per kilogram of body weight, except in cases of hepatitis, in which BAL must be given in smaller doses if severe reactions are to be avoided. The author investigated the possibility of an increase in the urinary excretion of gold coincident with the administration of BAL in 3 cases, but because the method used proved unsatisfactory it is not possible to furnish evidence as to whether the excretion of gold in the urine is or is not increased. Though relapse in the symptoms of rheumatoid arthritis following treatment with BAL has not been a feature of the present cases, it is probably undesirable to use BAL in quantities larger than necessary to control the toxic symptoms. It is suggested on the first sign of gold toxicity, other than hepatitis, and persisting in spite of stopping use of gold, that BAL may be given in a single intramuscular injection of up to 4 mg. per kilogram of body weight. The case can be reviewed from week to week or at shorter intervals, and further single injections of BAL may be given if necessary. BAL has been used in this way effectively in 4 cases in the present series. Where severe toxicity is present, such as exfoliative dermatitis, ulcerative stomatitis, and probably nephritis, agranulocytosis and thrombopenic purpura, more energetic treatment will be required. BAL could probably be administered with advantage in quantities up to 4 mg. per kilogram of body weight every four hours, omitting the night dose, for two or three days.

### Brain, London

71:109-228 (June) 1948

- Grasp Reflex and Instinctive Grasp Reaction. H. Seyffarth and D. Denny-Brown.—p. 109.
- *Referred Pain and Associated Phenomena. D. C. Sinclair, G. Weddell and W. H. Feindel.—p. 184.
- Studies on Copper Metabolism in Demyelinating Diseases of the Central Nervous System. B. M. Mandelbrote, M. W. Stanier, R. H. S. Thompson and M. N. Thruston.—p. 212.

**Referred Pain.**—According to Sinclair and his co-workers none of the existing theories is capable of explaining all the observations which have been made on the subject of referred pain. From recent work on the anatomic mechanisms underlying various aspects of pain sensibility in the periphery, and on the mode of production of referred pain from the deep somatic tissues of the back, it is postulated that an essential factor in the production of referred pain is the existence of branching among the sensory pathways conveying the sensation of pain. This branching is of such a type that one limb of a branched axon passes to the site of origin of the disturbance, and others pass to the sites to which the pain is referred. This mechanism works in two ways: (1) by leading to a misinterpretation by the central nervous system of the true origin of the pain impulses and (2) by the liberation of metabolites at the terminals in the region where pain is experienced, thus giving rise to secondary pain impulses actually having origin at the periphery. In any given case, both mechanisms are concerned, the first being initially more important than the second, but the second increasing in importance with time and in the later stages preponderating. This theory rests on a basis of currently accepted anatomy and physiology, and is capable of explaining the numerous and sometimes divergent observations which have been made on the reference of pain from both somatic and visceral structures. It may require extension and amplification.

### British Journal of Ophthalmology, London

**32:517-728 (Sept.) 1948. Partial Index**

- Developmental Aphasia Also Known as Congenital Word-Blindness and Sometimes Referred to as Alexia or Dyslexia. A. H. H. Sinclair.—p. 522.
- Histologic Findings in Case of Angioid Streaks. F. H. Verhoeff.—p. 531.
- Contribution to Microscopic Anatomy of Sympathizing Eye. R. A. Greeves.—p. 545.
- Present Position of Problem of Intra-Ocular Fluid and Pressure. S. Duke-Elder and H. Davson.—p. 555.
- Participation of Ocular Appendages in Sympathetic Ophthalmia and Its Bearing on Enucleation. B. Samuels.—p. 569.
- Lindau's Disease—Progression in Affected Family. A. E. MacDonald.—p. 575.
- Methods of Investigating Eye Movements. H. Hartridge and L. C. Thomson.—p. 581.
- Radiotherapy of Malignant Intra-Ocular Neoplasms. H. B. Stallard.—p. 618.
- Point for Consideration in Use of Stereoscope. F. W. Law.—p. 639.
- Effect of Age and Illumination Upon Visual Performance with Close Sights. H. C. Weston.—p. 645.
- Sidelights on Inferior Oblique Muscle. J. R. Anderson.—p. 653.
- *Some Unusual Cases of Sjögren's Syndrome. H. Coverdale.—p. 669.
- Adaptation to Environment. F. A. Williamson-Noble.—p. 673.
- Angiomatosis Retinae, with Report of Pathologic Examination. H. Neame—p. 677.
- Visual Protection in Aerial Warfare. P. C. Livingston.—p. 689.
- Goniotomy for Relief of Congenital Glaucoma. O. Barkan.—p. 701.

**Sjögren's Syndrome.**—According to Coverdale, Sjögren's syndrome indicates a general constitutional or systemic disturbance of unknown origin. Most cases appear in women at or after the menopause without any history of previous disturbance of the menstrual cycle. The extreme chronicity of the complaint suggests the possibility that the menopause is only an aggravating factor in a condition already established. The author describes cases with unusual constitutional factors. The first 2 cases presented are of a man and his daughter. The man, aged 68, had had a habit of sitting with his eyes closed when not at work. During this time he had also had a slight dryness of the mouth. He made no complaint of these disabilities until a few months ago when he had a cerebral hemorrhage with hemiplegia and his eyes became worse. He was found to have typical filamentary keratitis with Schirmer's test of 5 mm. in five minutes (control, 25 mm.). The filaments and much of the discomfort disappeared in a few weeks with no more than the application of petrolatum to the lid margins, though the deficient lacrimal secretion remained unchanged. A diagnosis of keratitis sicca may be preferred to that of Sjögren's syndrome. The daughter of this man had a lifelong history of dry eyes and showed signs of pituitary dysfunction. The third and fourth cases are of a woman and her daughter, the latter having pulmonary tuberculosis. The fifth case is of a young woman whose symptoms seemed to originate from a fracture of the base of the skull. Some of these cases illustrate a common and understandable vagueness about the time of onset. The progress is usually extremely slow and there is a considerable difference between the result of Shirmer's test in the normal subject and in the patient with signs and symptoms of keratoconjunctivitis sicca. A patient may show the syndrome in a fairly advanced state without being greatly inconvenienced and it is usually impossible even to infer when secretion began to fail. The author suggests that a congenital defect might be assumed which may be made manifest at any period of life by some aggravating circumstance. This suggestion is supported by Lisch's series in which 12 persons in three generations of one family showed some evidence of the syndrome.

## British Journal of Radiology, London

**21**:431-480 (Sept.) 1948

Roentgen Ray Examination of Paranasal Sinuses with Particular Reference to Frontal Sinuses. S. Welin.—p. 431.
Pathologic Gall Bladder. F. Greenwood and E. Samuel.—p. 438.
Radiologic Determination of Level of Diaphragm in Emphysema. M. Grossmann and H. Herxheimer.—p. 446.
Further Report on Factors in Etiology of Osteochondritis of Spine. F. H. Kemp and D. C. Wilson.—p. 449.
Note on Type of Flexion Fracture of Spine. G. Q. Chance.—p. 452.
Approximate Theoretic Solution of Problem of Scattering of Soft X-Rays (Between 0.25 and 0.56 A) and Its Consequences in Medical Radiology. R. H. de Waard.—p. 454.
Radiation Myelitis of Cervical Spinal Cord. G. Boden.—p. 464.
Method of Checking the Centering of X-Ray Tubes. A. D. O'Connor and L. F. Lamerton.—p. 470.
Angiocardiographic Experiments on Pathogenesis of Adrenalin Pulmonary Edema in Rabbits. A. Elkeles.—p. 472.

## British Journal of Surgery, Bristol

**36**:1-112 (July) 1948

Hyperplastic Callus Formation, with or without Evidence of Fracture, in Osteogenesis Imperfecta: With Account of Histology. H. A. T. Fairbank and S. L. Baker.—p. 1.
Solitary Plasmocytoma of Bone with Renal Changes. G. Lumb.—p. 16.
Case of Polyostotic Fibrous Dysplasia. A. C. Bingold.—p. 22.
*Tantalum in Repair of Traumatic Skull Defects. W. Lewin, M. P. Graham and G. B. Northcroft.—p. 26.
Lymphadenoid Goitre. H. M. Goldberg and J. Davson.—p. 41.
Gas Cysts of Intestine. J. D. T. Jones.—p. 49.
Case of Intussusception Caused by Endometriosis of Ileum. Kathleen Cuningham and K. Viner Smith.—p. 50.
Congenital Obstruction of Colon in Adult. D. K. Reid.—p. 52.
Cecal Fecolith: Report on Two Cases. A. J. Walker.—p. 55.
Two Cases of Volvulus of Stomach in Diphragmatic Hernia. H. A. Kidd.—p. 58.
Study of Peptic Ulcer in Nigeria. M. Ellis.—p. 60.
Atypical Crohn's Disease: Report of 3 Cases. M. J. Bennett-Jones and G. F. Wigglesworth.—p. 66.
Carcinoma of Esophagus: Clinico-Pathological Study. R. W. Raven. —p. 70.
Operation of Prefrontal Leucotomy. E. C. Dax and E. J. Radley-Smith. —p. 74.
Recurrent Epithelioma of Lip. P. P. Cole.—p. 79.
Interstitial-Cell Tumours of Testicle: With Report on Case. I. I. Price. —p. 81.
Histopathology of Semisquamous Epithelial Layer in Small Intestine. F. Duran-Jorda.—p. 84.
Radical Mastectomy. H. Atkins.—p. 87.
Defect in Broad Ligament and Its Association with Intestinal Strangulation. A. Baron.—p. 91.
Ruptured Quadriceps: Clinical Study. E. I. Lloyd.—p. 94.
Rupture and Suture of Femoral Vein. C. Wells.—p. 97.

**Tantalum in Traumatic Skull Defects.**—Lewin and his co-workers describe the use of tantalum for repair of traumatic skull defects at the Military Hospital for Head Injuries in Oxford and the immediate and late results of the first 128 cases followed up for a period of at least two years. Of the 124 cases traced 94 have been completely satisfactory and without complications two years or more following operation. Eleven of the 130 plates inserted have been removed, 5 on account of infection and 4 for an intracerebral complication; 2 were cosmetic failures. There were no postoperative deaths and the convalescence was usually uneventful, but in most patients serosanguineous fluid collected beneath the scalp and required aspiration. In 3 cases a subgaleal collection of cerebrospinal fluid persisted for several weeks. There was 1 case of postoperative wound infection. The cosmetic results were generally good. The incidence of infection, both early and late, was 7 per cent. There was no evidence that cranioplasty with tantalum diminished traumatic epilepsy. On the other hand, the operation may precipitate an attack. This occurred in 20 per cent of the epileptic group. For this reason all patients should be given anticonvulsants during the operative period. Plating may be successfully carried out three months after wounding or after healing of an infected wound. There is a possibility that tantalum in contact with the ventricular system may stimulate the production of cerebrospinal fluid. For these reasons the dural cover beneath the plate should be complete; all tears should be sutured or repaired with a fascia lata or pericranial graft. Tantalum is a satisfactory material for cranioplasty of the vault; its main disadvantage is that it is radio-opaque, and it would not be indicated in those cases in which it was thought that air studies might be required in the future. The authors gained the impression that in the low frontal region tantalum is probably not the repair material of choice, since the cosmetic result cannot be guaranteed with a one stage procedure, and the plates tend to slip unless special precautions are taken.

## British Medical Journal, London

**2**:543-584 (Sept. 18) 1948

*Lowered Incidence of Sensitization Through Use of Sulfonamide Combinations: New Concept. D. Lehr.—p. 543.
Purpura Fulminans Complicating Scarlet Fever. T. Anderson, M. S. Ferguson and J. B. Landsman.—p. 549.
Rhabdomyosarcoma of Urinary Bladder. C. H. Vipond.—p. 551.
*Streptomycin in Non-Tuberculous Infections: Summary of Report to Medical Research Council. C. Wilson.—p. 552.
"C.B.11": A New Analgesic Drug: Preliminary Communication. W. M. Wilson and R. B. Hunter.—p. 553.
Asphyxia of the Newborn Treated by Rocking. F. C. Eve and N. C. Forsyth.—p. 554.
Gynatresia: Report of Three Uncommon Clinical Types. R. G. Maliphant.—p. 555.

**Lowered Incidence of Sensitization Through Use of Sulfonamide Combinations.**—On perusal of the extensive literature on sulfonamide compounds Lehr gained the impression that in the dosage range employed in human prophylaxis and therapy the incidence of drug rash and drug fever increases in direct proportion with the dosage of absorbable sulfonamide compounds. At an oral dosage of not more than 2 Gm. of sulfonamide drug in twenty-four hours none of the compounds used at present appears to produce rash or fever in any significant percentage of cases even if used for prolonged periods and repeatedly in the same persons. The incidence of these reactions assumes significant proportions when the dosage is increased to more than 4 Gm. in twenty-four hours, and reaches even higher percentages with full therapeutic amounts of 6 Gm. or more in twenty-four hours, provided medication is maintained for a minimum of three to five days. These observations indicate that the production of sensitization reactions is dependent on the repeated presence of certain critical tissue concentrations of a sulfonamide compound for several days. In the majority of patients sensitization is limited to the sulfonamide drug used for therapy. Hence the simultaneous administration of several sulfonamide drugs in partial dosage should result in a reduced incidence of sensitization because it permits "dilution" of individual drug concentrations below the level necessary for the production of allergy. Practical experience with combinations of two or three sulfonamide drugs in 610 patients demonstrated a conspicuously low incidence of drug rash and fever at the full therapeutic dosage of 6 Gm. in twenty-four hours. The author discusses the significance of this finding and its possible bearing on toxic reactions from compounds of the thiouracil series, and drug allergy in general.

**Streptomycin in Nontuberculous Infections.**—Wilson says that in December 1946 the Medical Research Council appointed a committee to arrange clinical trials of streptomycin in nontuberculous infections. The trials were extended to eleven centers. This report summarizes the pooled results of the investigation. Of the patients with meningitis who were treated with streptomycin 43 had the form caused by Hemophilus influenzae. From this series it appears that streptomycin alone is probably as effective in meningitis due to H. influenzae as any other form of treatment at present available. Because of the development of resistance an attempt was made to use a combination of streptomycin, penicillin and the sulfonamide compounds. In the other 14 patients with meningitis, the causative organisms included Escherichia coli, Pseudomonas pyocyanea, Staphylococcus pyogenes, Proteus, and Streptococcus faecalis. The infection was controlled in 11 instances. Streptomycin is a valuable therapeutic agent in pyogenic meningitis due to penicillin-resistant organisms. Five cases of subacute bacterial endocarditis due to Streptococcus viridans or H. influenzae and 1 case of uncertain nature have been treated. With the exception of the latter, the response to streptomycin has been only temporary. Two cases of septicemia without endocarditis due to Ps. pyocyanea or Esch. coli have responded satisfactorily. A series of 61 patients with infection of the urinary tract due to Esch. coli, Ps. pyocyanea, Proteus, Staph. pyogenes and Str.

faecalis has been investigated. In roughly half the cases the infection has been controlled by intramuscular administration of 3 Gm. of streptomycin daily for one to three days. Failure has almost always been due to the development of resistance. Fifty-five patients with local infections have been treated. These include infected burns, operation wounds, superficial ulcers, sinuses, abscess cavities and septic skin conditions. The results are favorable, particularly in superficial lesions. Chronic lung infections due to bronchiectasis and lung abscess (14 cases) have been treated. Although a temporary reduction in bacterial content of the sputum has been noted, there was little if any clinical improvement. Forty-two cases of infantile diarrhea have been treated by oral administration of 2 to 4 Gm. of streptomycin spread over seven days. So far treatment has not been sufficiently controlled to warrant definite conclusions. A small number of cases of ulcerative colitis and of typhoid have been treated with negative results.

## Acta Cardiologica, Brussels

### **3:**175-272 (No. 3) 1948

*Efficacy of Stellectomy in Angina Pectoris. Causes of Errors in Appreciation of Results. D. Danielopolu.—p. 175.
Reading of Left Ventricular Teleroentgenkymogram. R. Heim de Balsac.—p. 189.
Attempt of Roentgenologic Determination of Length of Ligamentum Arteriosum and of Arterial Canal. E. Donzelot and R. Heim de Balsac.—p. 212.

**Stellectomy in Angina Pectoris.**—According to Danielopolu it is erroneous to think that the anginal attack consists exclusively of pain, which presents only one of two constitutional elements of the attack. The motor element is the other element which changes the fundamental properties of the myocardium and which may be responsible for the cardiac arrest. The myocardium is the point of departure of the vicious pressor circle which produces the attack. The coronary constriction is the primary and the only essential phenomenon. The author's method for surgical treatment of angina pectoris aims to suppress the pressor reflex and consists of cutting the cervical sympathetic cord above the stellate ganglion, the cardiac branches of the cervical vagus and of the cervical sympathetic nerve, the vertebral nerve and the rami communicantes which unite the stellate ganglion with the fifth, sixth, seventh and eighth cervical and the first thoracic roots. The paths of the coronary-dilator reflex are not affected. By this method the endocardoaortic sensory filaments and the centrifugal parasympathetic filaments are intercepted and consequently the paths of the coronary-constrictor reflex are interrupted. The paths which conduct the thoracobrachial pain remain intact. The stellectomy suppresses the anginal pain, but does not prevent the attacks which continue, while the pain may be experienced only in the cutaneous areas where the sensory filaments which irradiate the pain have not been intercepted. The stellectomy does not suppress the motor element of the anginal attack; the attack may be produced, but not realized by the patient, and sudden death, myocardial infarct or congestive heart failure may result. The attack may be prevented by the author's physiologic method. It is masked by stellectomy, depriving the patient of the "signal of danger" which may induce him to avoid exertion.

## Annales Paediatrici, Basel

### **171:**121-184 (Sept.) 1948. **Partial Index**

*Hookworm Anemia in Children. E. Stransky and D. F. Dauis-Lawas.—p. 121.
Iron Deficiency Anemia in Infancy and Childhood in the Tropics. E. Stransky and D. F. Dauis-Lawas.—p. 139.
Modification of Functional Disturbance of Liver of Nurslings by Cortex of Suprarenals. L. Barta.—p. 158.
Cold Injuries in Subtropical Climate. E. Nassau.—p. 167.

**Hookworm Anemia.**—Stransky and Dauis-Lawas point out that anemia due to iron deficiency is prevalent in the Philippines probably as the result of the dietary habits of the people, who live mostly on rice, dried fish and a few vegetables. The red blood cell count and hemoglobin level of the average Filipino are definitely lower than those of the average American. If there is hookworm infestation the low iron intake is insufficient to maintain a reasonable hemoglobin level and severe anemia develops. The war with its mass starvation and deterioration of living and hygienic conditions resulted in a great increase in hookworm anemia. This made it possible for the authors to study several aspects of hookworm anemia not investigated in their previous studies. Fourteen of their 15 patients were children; the fifteenth was a 20 year old mother, admitted with her 2 month old infant. Mother and child were severely anemic. This provided a chance to study the effect of maternal hookworm disease on the offspring. Blood, bone marrow and feces were examined. Hookworm anemia is usually microcytic and hypochromic, but macrocytosis is not exceptional. Fourteen of the 15 patients had anemia of the regenerative type, while 1 patient had aplastic anemia (panmyelophthisis). Loss of blood resulting from infestation with a blood-sucking insect is an important factor in the causation. Additional factors are iron, protein and vitamin deficiencies, and also secondary infections. Case histories indicate that if sufficient amounts of iron and protein are administered, the improvement is fast. Secondary infections delay the improvement. Commenting on the case of the young mother and her infant, the authors say that the anemia in the infant is due to lack of sufficient iron storage during fetal life on account of iron deficiency of the mother.

## Archivio Italiano de Derm., Sif. e Vener., Bologna

### **21:**3-66 (No. 1) 1948. **Partial Index**

*Myelogram in Recently Acquired Syphilis. L. Bertellotti and E. Biagini.—p. 13.

**Myelogram in Syphilis.**—Bertellotti and Biagini studied myelograms of 30 patients with either primary or secondary syphilis. The material was obtained by sternal puncture. The majority of the patients were between the ages of 20 and 30 years. The myelogram was normal in all patients who were in good general condition, whereas it showed parenchymal hyperplasia in patients in poor general condition. The functional study of the sternal marrow showed a defect in the maturation of the cells, which in some cases was inhibited and in other cases accelerated. The curves of maturation did not follow typical diagrams. Hypereosinophilia was frequent in myelograms of patients who had had no treatment, as well as in those taken from patients in the course of Herxheimer reaction, of erythema of the ninth day, and of arsenical erythrodermia. The authors believe that Herxheimer reaction, erythema and erythroderma are allergic reactions to syphilis, treponema toxins and arsenic, respectively.

## Chinese Medical Journal, Shanghai

### **66:**235-290 (May) 1948

Physiologic Reactions to Changing Environment: (1) Sensations of Heat and Moisture. Wei-Yung Lee.—p. 235.
Total Nasal Reconstruction: Standardized and Simplified Indian Method. R. Ru-Yao Sung.—p. 243.
Rat and Flea Study in Lanchow with Particular Reference to Typhus Infection.. Fu-Hung Ke, Hwei-Ching Chang and Wei-T'ung Liu.—p. 247.
Multiple Cartilaginous Exostoses (Hereditary Deforming Chondrodysplasia). Fun-Yong Khoo, Ping-Yi Chang, Ching-Tan Lee and Kuo-Sheng Fan.—p. 252.
Thymoma: Report of Case. S. C. Pan, C. S. Chih and Y. B. Chien.—p. 257.
Enlargement of Liver and Spleen: Statistical Study of 1,500 Cases in Infants and Children. Yung-En Kao.—p. 260.
Infantile Cortical Hyperostoses: Report of Case. Katherine T. Chen and Ting-Sing Yu.—p. 266.
Penicillin in Treatment of Agranulocytosis. C. W. Wang, C. T. Lee and H. T. Lee.—p. 268.
Discharging Wound of Umbilicus. J. C. Hsiung and M. S. Shih.—p. 271.
*Duodenal Ulcer in Child of Two Years: Case Report. Shao-Chow Pan and Yin-Tang Hsu.—p. 274.
*Nephritis in Scabies. K. C. Wang, C. T. Teng, C. C. Chen and C. K. Hu.—p. 277.
Urethral Diverticulum Complicating Neisserian Infection: Case Report. Yung-Yao Liu.—p. 280.

**Duodenal Ulcer in Child of Two Years.**—Pan and Hsu report the case of a boy, aged 2, who was hospitalized on Nov. 7, 1939. On October 31 the child exhibited a slight fever; he became irritable on the following day and drowsy on the third day. The child had one bowel movement every day, the stools being yellowish and soft in the first four days after onset but becoming dark on the fifth day. Five hours prior to admission he passed a tarry stool mixed with fresh blood. The boy died four days after hospitalization, after having passed more fresh blood and tarry stools and after vomiting coffee ground dermatologists find that treatment with vitamin A does appear to be somewhat helpful in an occasional case, but not in most cases. It is not a panacea. It has not replaced such measures as the intelligent and skilful use of (*a*) roentgen therapy, ultraviolet rays, or the so-called cryotherapy supplemented by (*b*) restriction of iodides, bromides and foods rich in fats; (*c*) the topical use of astringent and antiseptic lotions and, when indicated (*d*) the administration of estrogenic substances, and (*e*) attention to such factors as anemia, constipation, foci of infection and sedentary habits.

## CHLORINATION EFFECT ON POLIOMYELITIS VIRUS

*To the Editor:*—Does the usual method of chlorinating water render it safe for domestic use when there is known contamination by poliomyelitis virus? Is the study of this subject by Ridenour and Ingols, *American Journal of Public Health, June 1946, page 639,* authentic and conclusive? Has there been any correlation in areas having chlorinated domestic water and those having low incidence of poliomyelitis?

Harold F. Holsinger, M.D., Wendell, Idaho.

ANSWER. — There appears to be no reason for questioning the data reported by the authors cited. A later paper (Lense, Rhian and Stebbins, *Am. J. Pub. Health.* **37**:869, 1947) indicates that rise of $p_H$ reduces somewhat the virucidal action of free chlorine and discusses the relative effectiveness of free chlorine compared to that of chloramine. The only criterion available for inactivation of the virus is the result of inoculating susceptible animals. Conceivably, occasional persons might be infected by a dilution of virus too high to be detected by such a test, but evidence on this is lacking. Nearly all studies on chlorination have thus far been done with a single strain of virus (Lansing) because it is infectious to mice and therefore convenient to study. There are other strains for which the only available test animal would be the monkey. Inactivation of these strains by chlorine has not been adequately studied.

Statistical evidence of any relation between chlorination of local water supplies and incidence of poliomyelitis is not available.

## CHRONIC VAGINITIS

*To the Editor:*—A 24 year old married woman has had a vaginal discharge for six years. Vaginal examination reveals a thickened boggy intact vaginal mucous membrane covered with a dry gray-white discharge which has a $p_H$ of 6.5. The vaginal flora contains an organism tentatively identified as Acrobacter aerogenes. The urine on each of three tests was found to be swarming with bacteria. Urine culture was reported as positive for A. aerogenes. No other findings were made. Please advise additional diagnostic and therapeutic procedures.

W. R. Metzger, M.D., Corpus Christi, Tex.

ANSWER.—No mention is made of a hanging drop examination of the vaginal discharge. If this has not been done, a drop of vaginal secretion should be diluted with a drop of isotonic sodium chloride solution and examined under a dry high power lens. If Trichomonas vaginalis or Monilia organisms are present, they can readily be detected in the fresh hanging drop. A Monilia infection is often the cause of a grayish white discharge, but nearly always there is associated pruritus.

A useful drug for treatment of A. aerogenes infection is calcium mandelate. If this treatment does not bring about the disappearance of these bacteria, streptomycin should be used. The two forms of treatment may be used simultaneously.

## RETINITIS PIGMENTOSA

*To the Editor:*—1. Information is requested concerning studies carried out that may have confirmed the work of V. P. Filatov and V. A. Verbitska, "Treatment of Retinitis Pigmentosa with Intramuscular Injections of Cod Liver Oil" (*Am. Rev. Soviet Med.* **3**:388 [June] 1946).

Have the claims of A. Lipkina, "Tissue Therapy of Retinitis Pigmentosa (*Oftal. zhur.* no. 2, p. 29, 1946) been sustained?

Colonel, M.C., U. S. A.

ANSWER.—1. Dr. Dan M. Gordon and his colleagues at Cornell University College of Medicine have made an extensive study of retinitis pigmentosa treated by the method of Filatov and Verbitska. Results of this work, reported at the 1947 meeting of the American Academy of Ophthalmology and Otolaryngology and in the *American Journal of Ophthalmology* (**30**:565-580 [May] 1947) were disappointing and did not support claims of the Russian authors. In the May 1947 issue of the *American Journal of Ophthalmology,* page 635, will be found a critical editorial on the same subject.

2. Special work has not been done on the Lipkina method of treating retinitis pigmentosa with injections of aqueous extract of leaves of aloe conserved in the dark or of injections of this substance combined with implantation of conserved cadaver skin. Competent ophthalmologists in the United States believe that tissue therapy of retinitis pigmentosa is fruitless.

## ACUTE LYMPHATIC LEUKEMIA

*To the Editor:*—I have a nephew aged 17 years and weighing 165 pounds (74.8 Kg.). He had pneumonia and pleural effusion on the left side in August 1948 and was treated with penicillin and streptomycin. Blood cell count at that time showed 17,500 white cells with 65 per cent lymphocytes and 27 per cent polymorphonuclear cells. A cervical node was removed for study, and the pathologist made a diagnosis of acute lymphatic leukemia. He was given a transfusion and some roentgen treatment; yet his cell count still climbs. On September 17 his white cell count was 180,000. All of his lymph nodes have become enlarged. Can anything be done to relieve this boy? Would blood from one who had had the disease be of any benefit?

C. W. Durham, M.D., Greensboro, N. C.

ANSWER.—The diagnosis of leukemia cannot be seriously questioned in view of the white cell count and biopsy. If it is acute leukemia with a fulminating course and a high percentage (50 per cent or more) of blast forms there is no effective treatment. Even transfusions have little or no effect. The chronic forms of leukemia, on the other hand, with a relatively low percentage (10 per cent or less) of blast forms, are symptomatically improved by roentgen rays and various radioactive isotopes. It is doubtful whether life is actually prolonged, however. Transfusion with blood from other persons who had had leukemia is not known to be of benefit.

## ACHONDROPLASTIC DWARFISM

*To the Editor:*—What are the chances of a second achondroplastic dwarf's being born to the same apparently normal parents? What treatment can be expected to cause an achondroplastic dwarf of 10 months to approximate normal?

Albert W. Holman, M.D., Portland, Ore.

ANSWER.—Statistics are not available to indicate either the frequency with which achondroplastic dwarfism appears in the population or the chance that more than one infant will be born to the same parents. The condition may be hereditary in occurrence. The hereditary tendency for the condition to occur has demonstrated itself in (1) father and daughter; (2) grandfather, father, brother and sons, and (3) twins. It has been observed three times in brothers and sisters.

An achondroplastic parent of either sex may have normal children, which is the usual occurrence. The female is more predisposed to the condition than is the male. Readers are referred to the monograph by Rischbeith and Barrington in "The Treasury of Human Inheritance" (London, Dulau and Company, Ltd., 1912, vol. 1, pts. 7-8, p. 355), which presents eighty genealogic tables of families in which achondroplastic dwarfism has occurred.

Treatment of value in influencing the nature or the rate of growth of persons suffering from achondroplastic dwarfism is unknown.

## ANOMALY OF UTERUS

*To the Editor:*—What is the frequency of (1) congenital small uterus with single tube and ovary, and (2) parametrial fibroids?

H. Ostry, M.D., Calgary, Alberta, Canada.

ANSWER.—1. It is assumed that "the congenital small uterus" is meant to be truly an undeveloped uterus which is sometimes called a juvenile uterus. The müllerian system is a double system, and uterus, fallopian tubes and upper part of the vagina develop from it. Only one side may proceed to development, but a thorough dissection and examination should reveal remnants, macroscopically or miscroscopically, of the original structure. Likewise the gonads are bilateral and should develop accordingly; possibly only one may reach a recognizable size. Clinically there may appear to be but one horn of the uterus and perhaps but one tube and ovary in association with it. Such abnormalities are extremely rare. Consequently, percentages are insignificantly low.

2. Parametrial fibroid refers to extension or growth of the fibroid outward into the leaves of the broad ligament. This occurs not uncommonly but is less frequent than the classical intramural and subserous fibroid. Liomyomas or fibroids are usually multiple, and the interligamentous types vary in degree. Perhaps for these reasons the authors of several texts do not give percentages of this type.

## INTRAVENOUS ADMINISTRATION OF ETHER

*To the Editor:*—Please evaluate intravenous administration of ether in treatment of arteriosclerosis.

M.D., Michigan.

ANSWER.—Ether administered intravenously has no lasting curative or preventive value in the management of arteriosclerosis. Minute doses may induce temporary relief of some of the acute transient manifestations.

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# DIAGNOSIS OF CARCINOMA OF THE LUNG

## The Value of Cytologic Study of Sputum and Bronchial Secretions

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and
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Rochester, Minn.

The cytologic examination of sputum and bronchial secretions has proved to be an extremely valuable adjunct in the diagnosis of carcinoma of the lung. The practical value of the method was first demonstrated by Dudgeon and Wrigley[1] in 1935. Their method consisted essentially in making films of fresh sputum, fixing, while wet, in Schaudinn's solution and staining with hematoxylin and eosin. Subsequent studies by Barrett,[2] Gowar[3] and especially the thorough investigation of the subject by Wandall[4] served to reemphasize the importance of a painstaking cytologic examination of sputum as an important link in the examination of patients believed to be suffering from primary bronchogenic carcinoma.

A study of bronchoscopically removed secretions was advocated by Herbut and Clerf,[5] who felt that bronchial secretions are superior to sputum as a source of carcinoma cells. The method of fixation and the staining technic used were those advocated by Papanicolaou.[6]

The smear technic as a basis for diagnosis of malignant neoplasm having a free surface has been advocated for many years by Papanicolaou.[7] He has reported the results of sputum examination as positive in 88 per cent of 25 proved cases of carcinoma of the lung.[8] Of 25 cases in which the results were reported negative on the basis of smears, in 3 malignant neoplasms were eventually shown to be present, in 1 the diagnosis remained obscure and in 21 (84 per cent) the final diagnosis was something other than malignant disease.

Our experience with cytologic examination of sputum and bronchial secretions has served to convince us of its tremendous practical value in the diagnosis of indeterminate pulmonary lesions. The technic used and a discussion of the characteristics of exfoliated carcinoma cells in sputum or secretions have been outlined in previous reports by us.[9] To date we have examined the sputum or bronchial secretions of 2,188 patients. All material was examined as "unknowns" and reported positive or negative for carcinoma cells. In doubtful cases additional specimens were called for. A diagnosis of carcinoma on the basis of smears was given in a total of 200 cases. Pertinent data on these 200 cases in which the sputum or bronchial secretions were reported positive for carcinoma cells were then collected. The diagnostic value of the method and the accuracy of the diagnosis, particularly in regard to false positive reports, were determined from a study of these cases.

The accuracy of the diagnosis in the 200 cases in which a diagnosis of carcinoma was made on the basis of the examination of smears is of interest. In 121 cases a diagnosis of bronchogenic carcinoma was established on the basis of tissue sections obtained by bronchoscopic biopsy, surgical exploration, biopsy of lymph nodes or autopsy. In 69 cases a final clinical diagnosis of bronchogenic carcinoma or metastatic carcinoma was made. This was based on clinical and roentgenologic findings, evidence of metastasis and so forth. All lesions were considered inoperable on surgical consultation. In 4 cases, carcinoma was demonstrated in the larynx, trachea or esophagus. In 4 cases proved not to be carcinoma a false positive report was given. In 2 additional cases, whether the lesion was inflammatory or neoplastic remained doubtful.

### ANALYSIS OF CASES

*Cases in Which Surgical Exploration Was Performed.*—In this series, 74 patients with bronchogenic carcinoma underwent surgical exploration. Twenty-nine, 40 per cent of these patients, had exfoliated carcinoma cells in the sputum or bronchial secretions as the sole preoperative microscopic evidence of cancer. The diagnosis was based on sputum examination in 18 cases, on examination of bronchial secretions in 6 cases, on examination of both secretions and sputum in 3 cases

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From the Section on Surgical Pathology, Mayo Clinic.

Read before the Section on Internal Medicine at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

[1] Dudgeon, L. S., and Wrigley, C. H.: On the Demonstration of Particles of Malignant Growth in the Sputum by Means of the Wet-Film Method, J. Laryng. & Otol. **50:** 752-762 (Oct.) 1935.

[2] Barrett, N. R.: Examination of the Sputum for Malignant Cells and Particles of Malignant Growth, J. Thoracic Surg. **8:** 169-183 (Dec.) 1938.

[3] Gowar, F. J. S.: Carcinoma of the Lung: The Value of Sputum Examination in Diagnosis, Brit. J. Surg. **30:** 193-200 (Jan.) 1943.

[4] Wandall, H. H.: A Study on Neoplastic Cells in Sputum as a Contribution to the Diagnosis of Primary Lung Cancer, Acta chir. Scandinav. (supp. 93) **19:** 1-143, 1944.

[5] Herbut, P. A., and Clerf, L. H.: Bronchogenic Carcinoma: Diagnosis by Cytologic Study of Bronchoscopically Removed Secretions, J. A. M. A. **130:** 1006-1012 (April 13) 1946.

[6] Papanicolaou, G. N.: A New Procedure for Staining Vaginal Smears, Science **95:** 438-439 (April 24) 1942.

[7] Papanicolaou, G. N., and Traut, H. F.: Diagnosis of Uterine Cancer by the Vaginal Smear, New York, The Commonwealth Fund, 1943. Papanicolaou, G. N., and Marshall, V. F.: Urine Sediment Smears as a Diagnostic Procedure in Cancers of the Urinary Tract, Science **101:** 519-520 (May 18) 1945.

[8] Papanicolaou, G. N.: Diagnostic Value of Exfoliated Cells from Cancerous Tissues, J. A. M. A. **131:** 372-378 (June 1) 1946.

[9] Woolner, L. B., and McDonald, J. R.: Bronchogenic Carcinoma: Diagnosis by Microscopic Examination of Sputum and Bronchial Secretions; Preliminary Report, Proc. Staff Meet., Mayo Clin. **22:** 369-381 (Sept 3) 1947; Carcinoma Cells in Sputum and Bronchial Secretions: A Study of One Hundred and Fifty Consecutive Cases in Which Results Were Positive, to be published.

and on examination of bronchial washings or smears (direct swabbing of the bronchial wall) in 1 case each. In our experience sputum and bronchial secretions have proved equally satisfactory in the cytologic diagnosis of cancer of the lung. Bronchial secretions have the advantage of better localization of the lesion, while sputum is more readily obtainable and additional specimens can be obtained readily if necessary. If the patient does not have sputum and if no bronchial secretions can be aspirated, an occasional diagnosis is made on the basis of bronchial washings, that is, by instilling isotonic sodium chloride solution into the affected bronchus, with subsequent aspiration. In a few cases smears made by direct swabbing of the bronchial wall provided microscopic evidence of the presence of carcinoma.

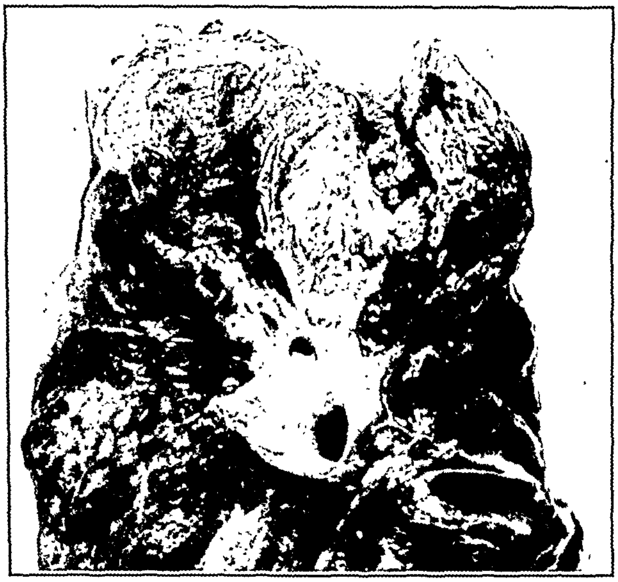

Fig. 1.—Bronchogenic carcinoma of the upper lobe surgically removed on the basis of exfoliated cancer cells in the sputum.

The majority of inaccessible bronchogenic carcinomas occur in relation to the bronchi of the upper lobes. In 12 of the 29 cases in which exploration was done on the basis of findings in smears, the carcinoma arose from the bronchus to the upper lobe of the left lung bronchus and in 6 cases from the bronchus to the upper lobe of the right lung. The lower lobe of the right lung, lower lobe of the left lung and middle lobe of the right lung were involved in 2 cases each. In 3 cases, the location of the tumor was at the orifice of the bronchus to the upper lobe of the left lung and the adjacent main bronchus. In 2 cases, the bronchus to the lower lobe of the right lung and the adjacent right main bronchus were involved.

In all the 29 cases, except 1, bronchoscopic examination was carried out. In 13 cases the bronchoscopic report read "completely negative" or "unable to find any tumor in the bronchial tree." In 3 cases deformity or stenosis of a bronchus tc an upper lobe was noted. Pus arising from the bronchi to the upper and the middle lobe of the right lung suggested an inflammatory process in 1 case. A mass obstructing the bronchus to the middle lobe of the right lung was present in 1 instance. In 1 case in which a large cystic lesion in the upper lobe of the left lung was shown roentgenologically, no bronchoscopic examination was performed. In the remaining 9 cases, infiltration about, or a degree of fixation of, the bronchus was reported as suggestive of malignancy. The results of bronchoscopic biopsy in all these cases, however, were negative for carcinoma.

In all the 29 cases but 1, roentgenologic shadow in the lung provided evidence for localization of the lesion. In the 1 case in which no mass was demonstrable on routinely made roentgenograms, a tomogram revealed an irregularity of the bronchus to the upper lobe of the left lung. In 2 cases the roentgenologic appearances were more suggestive of tuberculosis than neoplasm. In 1 case the roentgenologic report was "abscess or cavitating carcinoma," in 1 thickened pleura with residual fibrosis, and in 1 the appearances suggested bronchiectasis.

In 1 additional case proved by bronchoscopic biopsy and not included in this group, the results of sputum examination were positive for carcinoma cells but no evidence of carcinoma was found in the roentgenograms. Bronchoscopic examination revealed a squamous cell carcinoma of the right main bronchus near the carina which involved the lower end of the trachea.

*Pulmonary Resection for Bronchogenic Carcinoma on the Basis of Findings in Smears.*—In 13 of the 29 patients with bronchogenic carcinoma who had exfoliated carcinoma cells in the sputum or bronchial secretions and who underwent surgical exploration, the lesion was removable surgically. A preoperative diagnosis of bronchogenic carcinoma was made in all 13 cases on the basis of the cytologic features of the smears of sputum or bronchial secretions. In figures 1 and 2 are shown the gross appearance and the exfoliated cancer cells in the sputum in the case of one of these surgically removed bronchogenic carcinomas. The lesion was situated in the upper lobe of the left lung in 8 cases, in the upper lobe of the right lung in 1 case, in the middle lobe of the right lung in 1 case and in the lower lobe of the left lung in 3 cases. In 8 cases

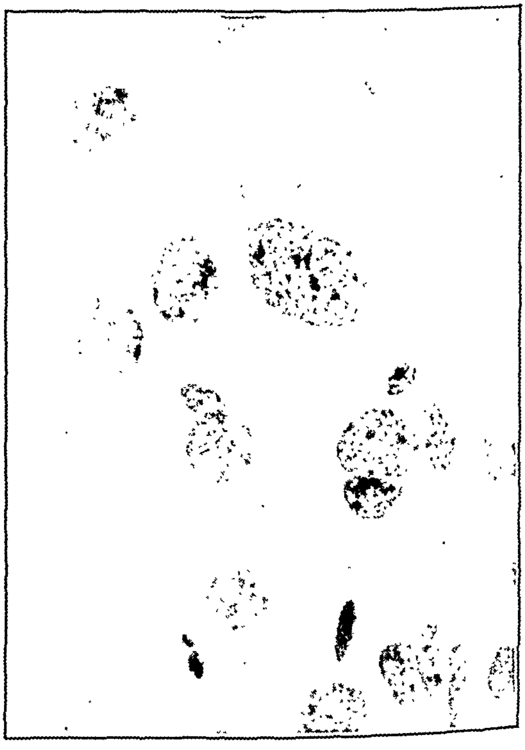

Fig. 2 (same case as fig. 1).—Bronchogenic carcinoma of the upper lobe. Exfoliated cancer cells in sputum (hematoxylin and eosin × 750).

the results of bronchoscopic examination were reported as "completely negative." In 1 case bronchoscopic examination was not carried out. In 4 cases, the appearance of the lesion, infiltration or fixation of the bronchus suggested carcinoma to the bronchoscopist but the results of biopsy were negative.

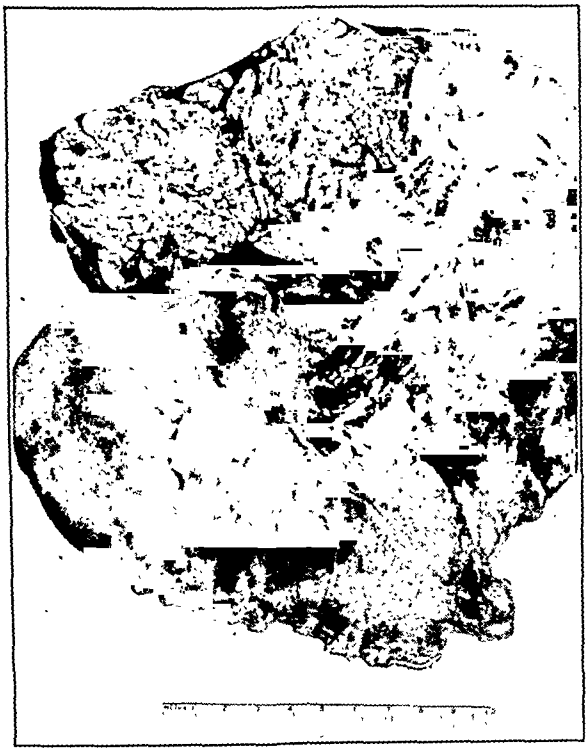

Fig. 3.—Superior sulcus tumor removed surgically.

In 3 cases the clinical picture was atypical. One of the patients in these 3 cases, who was subject to "chest colds" each winter, complained only of a cough which this time had failed to clear up as was usual after the cold weather. Bronchoscopic examination gave negative results and the roentgenogram was reported as showing thickened pleura with residual fibrosis in the base of the right lung. The presence of exfoliated cancer cells in the sputum, however, established the diagnosis of carcinoma, and resection was carried out. The other 2 cases are of sufficient interest to report in some detail.

Case 1.—A 39 year old man had rather acute symptoms for one month. These included fever, malaise, night sweats and some loss of weight. Symptoms relating to the thorax were minimal, and included pain in the left axilla and slight hemoptysis for two days before admission. Physical examination gave essentially negative results. Roentgenograms of the thorax revealed a "pathologic process left apex and first anterior interspace. There is considerable pleural reaction which is probably tuberculosis but primary malignancy cannot be ruled out." A bronchoscopic examination was carried out but no evidence of tumor could be seen. The sputum was negative for acid-fast bacilli and fungi. Clinically the picture did not suggest cancer but rather favored an infectious process. Skin tests were positive for Brucella as was the serum agglutination in a dilution of 1:400. No organisms could be isolated by blood culture. The diagnosis was established by a cytologic examination of sputum, in which were found numerous exfoliated cancer cells. On the basis of the carcinoma cells in the sputum and the localization of the lesion by roentgenogram, a left pneumonectomy was carried out. A highly undifferentiated bronchogenic carcinoma measuring 2 cm. in diameter was found in the left apex. The tumor involved a small bronchus 5.5 cm. distal to the orifice of the bronchus to the upper lobe of the left lung. No lymph nodes were found involved. The patient made an uneventful recovery and was dismissed in good condition.

Case 2.—A man aged 63 years consulted his doctor in his home community because of a "sensation" under the sternum that had been present off and on for two years. He was told he had an "enlarged artery" leading from his heart. He was in good health and had no other symptoms. Two months before admission he had had a slight cold and cough lasting two to three days, but these had cleared up completely. Examination of his chest gave essentially negative results, as did the remainder of the physical examination.

Roentgenographic and roentgenoscopic examination of the thorax at the clinic revealed a decided torsion of the aorta. No definite tumor could be demonstrated in the left hilus.

A sputum examination done at this time revealed carcinoma cells. Bronchoscopic examination was carried out and the results were negative. The results of two subsequent sputum examinations were reported as negative. Because of the absence of symptoms of carcinoma and the failure to locate a mass roentgenologically the possibility of error in interpretation of the sputum smears was considered. However, carcinoma cells were found in a second specimen of sputum and tomographic studies were carried out. The tomogram showed a "mass just above the left main bronchus which is probably an infiltrating bronchogenic carcinoma." On the basis of the carcinoma cells in the sputum and localization by tomograms a left pneumonectomy was carried out. Pathologic examination revealed a squamous cell carcinoma only 2 cm. in diameter involving the anterior inferior branch of the bronchus to the upper lobe. One hilar lymph node was found involved.

These 2 cases show the value of routine examination of sputum in cases of indeterminate thoracic lesions. In both, symptoms were lacking or atypical. Both lesions were inaccessible to bronchoscopic biopsy. In neither case could a definite diagnosis of bronchogenic carcinoma be made on routinely made roentgenograms of the chest.

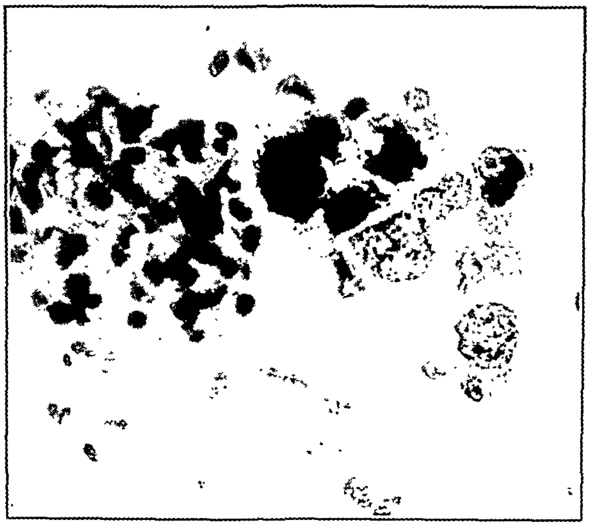

Fig. 4. (same case as in fig. 3)—Carcinoma cells found in the sputum (hematoxylin and eosin × 750).

*Pancoast's Superior Sulcus Tumor.*—Tumors of the pulmonary apex or superior sulcus tumors constitute a highly inaccessible group of neoplasms. Proof of the condition is frequently lacking until a late inoperable stage has been reached, the diagnosis depending frequently on finding destruction of adjacent bony tissue or the presence of Horner's syndrome. Cytologic examination of sputum and bronchial secretions serves as a valuable diagnostic aid in detecting such neoplasms and in establishing a diagnosis without delay.

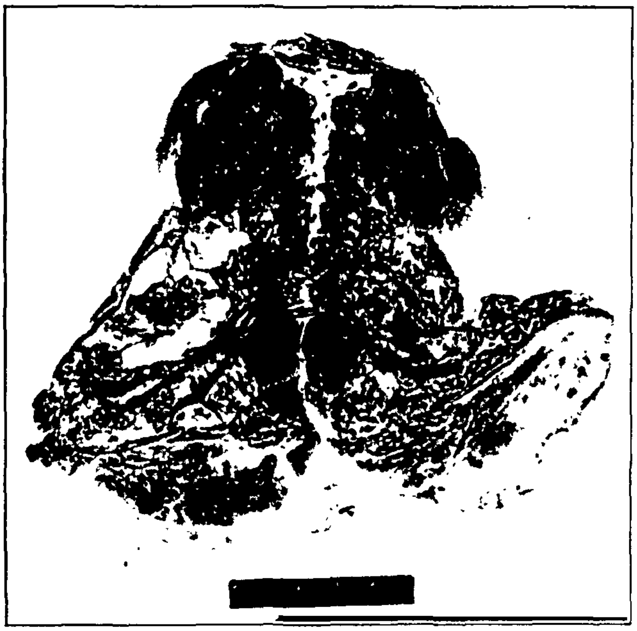

Fig. 5.—Alveolar cell tumor of the lower lobe of the left lung.

In this group of cases, 6 superior sulcus tumors were diagnosed on the basis of the position of the roentgenologic shadow and the presence of positive cytologic evidence. In 5 of these cases, the sputum was positive for carcinoma cells; in the sixth case no sputum or bronchial secretions could be obtained and the diagnosis was established by finding cancer cells in the bronchial washings. The tumor was situated in the right apex in 3 cases and in the left apex in 3 cases.

Bronchoscopic examination was carried out in 2 cases and gave negative results in both. Pneumonectomy was performed in these 2 cases. In 1 a small bronchogenic carcinoma 2 cm. in diameter was found in the apex of the lung directly under the pleura, but so far as could be determined the process was still confined to the pulmonary tissue. In the second case the tumor was freed with some difficulty from the apex of the thoracic cavity and brachial plexus and whether complete removal was effected was highly doubtful. The appearance of this tumor and of the carcinoma cells found in the sputum is shown in figure 3.

In the remaining 4 cases the lesions were inoperable. In 3 of the cases there was roentgenologic evidence of erosion of adjacent ribs or vertebrae. In the fourth case metastasis to the left ischium had occurred. The 3 patients who had inoperable lesions complained of severe pain in the shoulder girdle and arm, and in 1 of these Horner's syndrome was present.

It is interesting to note that the sputum may be positive for carcinoma cells even in this most peripherally located and inaccessible group of pulmonary tumors. Microscopic proof of the presence of carcinoma may be provided by this technic when all other methods fail. Since only a few carcinoma cells may be found in the sputum in some of these cases, several specimens should be examined if necessary before an indeterminate lesion is considered, on the basis of findings in smears, not to be a carcinoma.

*Alveolar Cell Tumor.*—In 4 cases in this series, carcinoma cells found in the sputum or bronchial secretions were believed to have arisen in an alveolar cell tumor of the lung. In the first case, the tumor involved the greater portion of the lower lobe of the left lung. Bronchoscopic examination revealed no tumor, but bronchial smears were found positive for carcinoma cells. The lobe was removed surgically. Histologically the tumor was a typical alveolar cell tumor. The appearance of the removed lobe, the carcinoma cells in the bronchial smears and the histologic section are shown in figures 5 and 6. In a second case, roentgenograms of the thorax revealed extensive bilateral dissemination of discrete nodular lesions. The sputum was positive for carcinoma cells. Biopsy of an enlarged left supraclavicular lymph node revealed a histologic picture compatible with that of a metastatic lesion from an alveolar cell carcinoma. In 2 additional cases, carcinoma cells were found in the sputum and the roentgenologic appearance of the pulmonary fields was consistent with that of alveolar cell carcinoma. No tissue section was obtained in either of these cases. Bronchoscopic examination was done in 1 case but no tumor was demonstrated in the bronchial tree. One patient died shortly after dismissal, but autopsy was not performed.

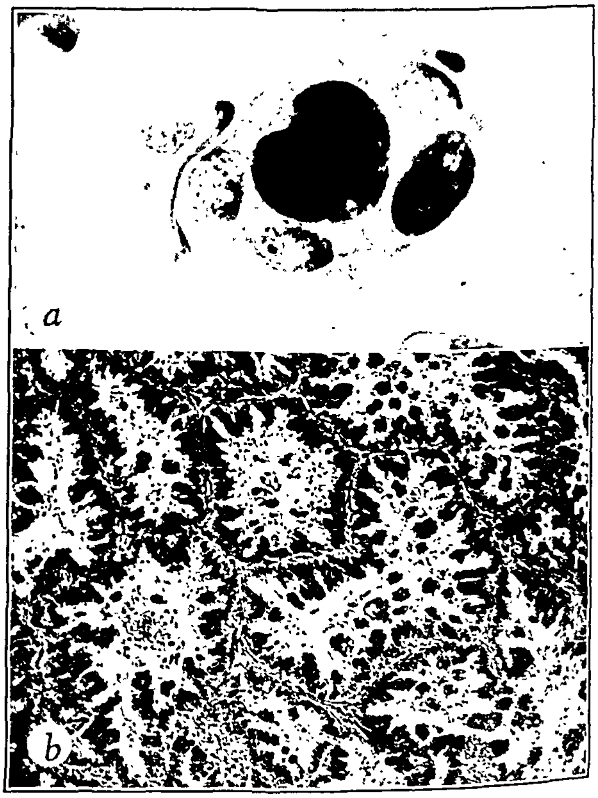

Fig. 6. (same case as fig. 5).—(*a*) Carcinoma cells in bronchial smears (hematoxylin and eosin × 750). Alveolar cell tumor of the lower lobe of the left lung. (*b*) tissue section (hematoxylin and eosin × 75).

*Adenoma and Cylindroma of the Bronchus.*—This group of tumors comprises about 10 per cent of primary pulmonary neoplasms. They arise from the submucous glands or their ducts, and the bronchial epithelium is usually intact over the surface. They form polypoid tumors that usually arise from one of the larger bronchi and are thus readily accessible to bronchoscopic biopsy. In our experience atypical cells are not found in the sputum or bronchial secretions in either the adenoma or cylindroma groups. This is not surprising in view of the well differentiated histologic pattern of the tumor and especially because of their covering of benign bronchial epithelium.

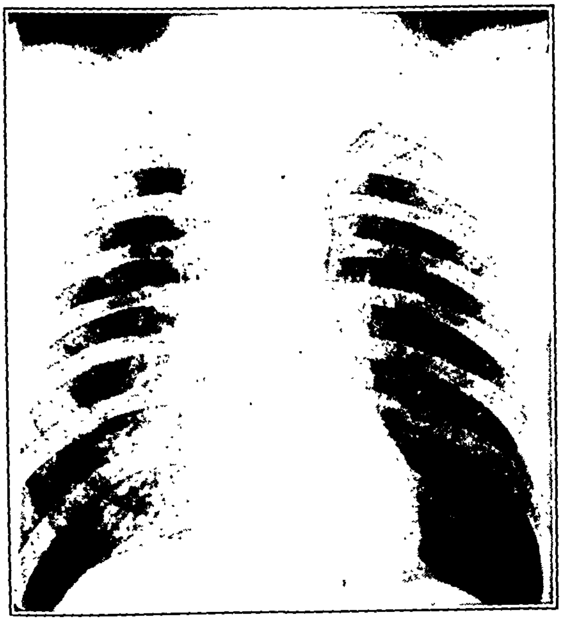

Fig. 7 (case 3).—Normal roentgenogram of the thorax.

*Diagnostic Value of Sputum Examination in Patients Who Do Not Undergo Bronchoscopy.*—In 43 cases in this series bronchoscopic examination was not carried out. In approximately one half of these cases there was roentgenologic or clinical evidence of metastasis. Demonstration of carcinoma cells in the sputum in these cases is largely an academic matter and serves merely to provide additional evidence of a primary bronchogenic neoplasm. In a certain number of cases, however, the patient cannot undergo bronchoscopy by reason of age, general physical condition or cardiac or cerebral disease. The presence of exfoliated cancer cells in the sputum in these cases provides a convenient method of confirming by microscopic means the clinical impression of bronchogenic carcinoma. The value of sputum examination in such instances is shown by a recent case encountered by us and not included in this series.

Case 3.—A man aged 42 years complained of a sensation of pressure in the head on coughing, straining or bending. The only other symptom was a cough that had been present for the past two and one-half months. Five years before admission he had had symptoms suggestive of a ruptured intracranial aneurysm following aerial acrobatics. Spinal tap at that time had revealed bloody fluid. No further cerebral symptoms had been noted in the meantime. On admission to the clinic he presented evidence of progressive obstruction of the superior vena cava. Studies revealed a venous pressure of 36.4 in the left brachial vein and 9.2 in the left saphenous vein, both expressed in centimeters of isotonic sodium chloride solution. Routine roentgenologic examination of the thorax gave negative results (fig. 7). Anteroposterior and lateral roentgenograms made with the aid of a Bucky diaphragm did not reveal any abnormality.

Examination of the sputum revealed large numbers of carcinoma cells (fig. 8). A diagnosis of bronchogenic carcinoma with invasion of the superior vena cava was made. Bronchoscopic examination was not considered advisable because of the history of a cerebral accident in 1943. An enlarged left axillary node was present, but biopsy was not considered necessary in view of the unequivocal sputum findings.

*False Positive Diagnoses by Smear Technic.*—In this series, 200 positive reports were given on the basis of examination of smears of sputum or bronchial secretions. Four of these positive reports were subsequently proved to be false. In 2 cases, lobectomy was carried out. In 1 a chronic tuberculous process was present in the upper lobe with stenosis of the upper lobe bronchus. In the other case, lobectomy revealed pronounced bronchiectasis. In 1 case in which smears were reported positive for carcinoma cells pneumonectomy revealed only chronic pneumonitis. In the fourth case in which a false positive report was made, autopsy revealed extensive infarction in addition to an organizing pneumonic process in both lungs. Examination of the mucosa of the large bronchi revealed portions in which there were squamous metaplasia and marked epithelial proliferation, mitotic figures being seen in the hyperplastic epithelial cells.

In 2 additional cases in which smears were reported positive for carcinoma cells the clinical impression was that of an inflammatory process. One of these patients presented roentgenologic evidence of extensive cavitation of the upper third of both pulmonary fields. Sputum studies were negative for acid-fast bacilli but showed numerous cells interpreted as carcinoma cells. Bronchoscopy failed to localize any malignant process. No follow-up data in this case were available. In the other case the final clinical diagnosis was empyema, and further information has not been obtained.

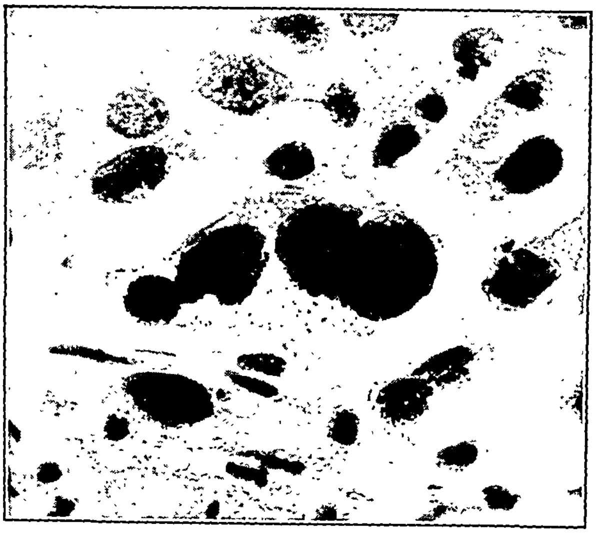

Fig. 8 (case 3).—Carcinoma cells found in the sputum (hematoxylin and eosin × 750). This patient presented evidence of obstruction of the superior vena cava.

The accuracy of diagnosis with this technic varies directly with the experience of the cytologist. Erroneous diagnoses may occur especially in the early period of investigation before sufficient experience has been acquired. After a large volume of work has been done, however, a remarkable degree of accuracy may be expected. When this degree of accuracy has been attained, the findings on sputum examination in the majority of cases of carcinoma are as convincing to the cytologist as are the findings on tissue section. Good judgment must be exercised in cases in which the cells are not markedly atypical or in which only a few suspicious cells are found. It is important that the smears be covered methodically so that a few isolated carcinoma cells do not escape notice. In doubtful cases additional smears should always be examined.

### SUMMARY AND CONCLUSIONS

An analysis of 200 cases in which a diagnosis of carcinoma was made on the basis of examination of smears of sputum or bronchial secretions has been carried out. In 190 cases a final diagnosis of bronchogenic carcinoma or pulmonary metastatic carcinoma was made. In 4 cases a carcinoma in the esophagus, larynx or trachea was demonstrated. In 4 cases the diagnosis was proved to be falsely positive. In the remaining 2 cases the final diagnosis was uncertain.

Exfoliated carcinoma cells in sputum or bronchial secretions provided the only preoperative microscopic evidence of cancer in 29 of 74 cases of bronchogenic carcinoma in which surgical exploration was carried out. In 13 cases of bronchogenic carcinoma in which the lesion proved removable, a preoperative diagnosis of cancer was based on the cytologic characteristics of sputum or bronchial secretions. In 6 cases of Pancoast's tumor and in 4 cases of alveolar cell tumor there were carcinoma cells in the sputum.

Cytologic examination of sputum is of great diagnostic value in the case of patients suspected of having bronchogenic carcinoma in whom bronchoscopic examination is contraindicated.

### ABSTRACT OF DISCUSSION

Dr. Henry A. Cromwell, New York: Dr. McDonald has presented representative slides of sputum and bronchial washing smears and has given an able discussion of the cytologic method of diagnosis of lung cancer. The internist must, however, be alert to the possible presence of lung cancer at all times. To diagnose lung cancer the clinician must first suspect its presence. A few of the questions which he must ask himself are: Is cancer lurking behind that lung abscess, this case of pneumonia, that case of atelectasis and pleural fluid, or is it the basis of that so-called tobacco cough? Can the patient's nervousness and loss of weight, sleeplessness and anorexia be due to an undiagnosed lung cancer? Has the patient with the infiltrative lesion in the upper lung field tuberculosis, as reported by the x-ray department, or is the lesion cancer of the lung? How are we going to find out? Are we going to take the roentgenologic report at face value? Because he has a negative bronchoscopy or bronchial biopsy, are we going to consider his lungs free of cancer? Are we going to have a sputum smear and because it is negative entertain no further ideas of cancer? No one method and no single report, positive or negative, for cancer should be accepted as final. A recheck is always in order. Most diagnoses are still made by the clinician who makes full use of all laboratory tests at his disposal. We are recommending a four to six month training course for pathologists who wish to undertake this method of diagnosis. It is hoped that these men not only will be able accurately to diagnose lung cancer by examination of sputum and bronchial washing smears but will become instructors for other pathologists who subsequently will desire to use this method.

# ARTERIOGRAPHY IN CEREBRAL VASCULAR ACCIDENTS

I. S. WECHSLER, M.D.
AND
S. W. GROSS, M.D.
New York

In a paper[1] read before the American Neurological Association in June of 1947, we reported our results with arteriography[2] in cases of acute and subacute subarachnoid hemorrhages due to intracranial aneurysms and other vascular malformations. Since our present investigation grew out of that work, it may be well to summarize our findings in 10 cases of spontaneous subarachnoid hemorrhages. In 6 the condition was due to vascular malformations and in 4 to aneurysms of the circle of Willis, in all demonstrated by arteriographic study. Ligation of the common carotid artery was done in nearly every case in which the arteriograms disclosed either a vascular malformation or an aneurysm. We have employed this procedure since 1941 and, with one exception, observed no ill effects. Since our earlier report was made, ligation of the common carotid was done in several more cases of acute subarachnoid hemorrhage due to aneurysms of the cerebral vessels.

Encouraged by the results of arteriography in cases of vascular anomalies, we began to use the method in instances of cerebral vascular accidents in order to learn whether the nature of the lesion could be determined with more certainty and whether surgical treatment could be instituted. Ordinarily, differentiation between hemorrhage, thrombosis and embolism is not difficult. There are, however, cases in which the usual criteria fail. The margin of error obviously varies with the clinician's experience and his diagnostic acumen, but, even so, all that can be done in many instances is to venture an opinion. In any case, all one tries to do is to make a diagnosis. One merely hopes for recovery. If it does not occur rapidly, invalidism of long duration, possibly permanent, is anticipated. Of treatment there is little. Should the physician, for example, want to give dicumarol® or heparin, whatever their value, it is clear that he must first be absolutely certain that he is dealing with a thrombosis, which is precisely what he cannot be. If he decides on trephinement, he must be sure that there is a hemorrhage and know where it is. It is our opinion that arteriographic study can help to distinguish between the two with a fair degree of accuracy and point to the exact location.

At first we felt our way slowly in the treatment of cerebral apoplexies, as we did in the treatment of subarachnoid hemorrhages, to learn which cases were suitable for arteriographic study, how to select them properly and, most important, how to determine the optimum time for such a study. But it is not merely diagnosis in which we were interested; this was merely the first step to rational treatment. If the diagnosis of hemorrhage is made, then we feel that trephinement is indicated and that the attempt to aspirate the blood or, if the arteriogram is made some time after the ictus, to evacuate the clot is justified. While we appre-

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From the neurological and neurosurgical services of the Mount Sinai Hospital.

Read before the Section on Nervous and Mental Diseases at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

[1] Wechsler, I. S., and Gross, S. W.: Cerebral Arteriography in Subarachnoid Hemorrhage, J. A. M. A. **136**: 517 (Feb. 21) 1948.

[2] Angiography includes both an arteriogram and a venogram.

ciate the theoretic arguments against the procedure, and similar ones were advanced against the use of arteriography in cases of acute subarachnoid hemorrhage, we can say with assurance that the procedure is safe and sometimes therapeutically valuable.

As our material is still limited, we can only venture a tentative opinion at this time. This report is based on 10 cases of cerebral vascular accidents in which arteriographic study was used. The following are a few typical case histories. Aspiration of blood or removal of a clot has led to rapid improvement in some patients who otherwise would have made little or no recovery. By operating on patients with hemorrhage, and we did not treat surgically those with thromboses, we may be able to prevent irreversible damage. While we cannot as yet say what the optimum time for an arteriogram and trephinement is, it is our growing conviction that the earlier it is done the better. If the patient's condition is not too poor, one may operate within a few days of the vascular accident. It seems to us that the shorter the waiting period the better, but it should not be more than a week or two. The blood or the clot, acting as a foreign body, destroys brain tissue, and if allowed to continue may bring about irreversible changes.

## REPORT OF CASES

Case 1.—A white man, aged 21, had been in good health except for the occurrence of rheumatic fever six years before. On the day of his admission to the hospital he awoke with a severe frontal headache. Within a few hours he became aphasic and vomited repeatedly. On examination he appeared acutely ill. His blood pressure was 120 systolic and 70 diastolic and the pulse rate 70. He had an expressive aphasia and, on the right side, hemiplegia, homonymous hemianopsia and hemisensory syndrome with astereognosis. The fundi were normal at this time. The spinal fluid was bloody under a pressure of 300 mm. The presumptive diagnosis was spontaneous subarachnoid hemorrhage. The patient remained severely ill for several days. Rigidity of the neck, fever, stupor and, within a few days, papilledema developed. An arteriogram (fig. 1) showed a pronounced elevation of the left sylvian vessels. Craniotomy disclosed a large intracerebral hematoma in the left temporo-occipital area. After removal of the hematoma the patient recovered completely and has remained well to date, about one year later. The cause of the intracerebral bleeding was not discovered. The rapid and ultimately complete recovery clearly was the result of the removal of the clot.

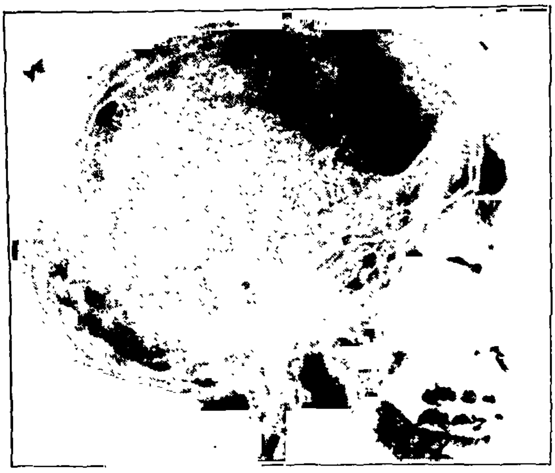
Fig. 1. (case 1).—Pronounced elevation of left sylvian vessels; hemorrhage.

Case 2.—Except for a head injury about one year previously, the patient, a 39 year old white man, had always been in good health. On the day of his admission to the hospital hemiplegia suddenly developed on the left side, followed by drowsiness and stupor. On examination there was rigidity of the neck, conjugate deviation to the eyes to the right and hemiplegia, homonymous hemianopsia and a hemisensory syndrome of the left side. The fundi showed early choked disks. The cerebrospinal fluid was grossly bloody under a pressure of 360 mm. He remained severely ill, with high fever, stiff neck and stupor. A few days later an arteriogram was done. This showed (fig. 2) a depression of the beginning of the sylvian vessels, with a straight vertical course of the ascending frontoparietal branches. At operation a moderately large subcortical hemorrhage in the posterior frontal and anterior parietal area near the sylvian fissure was found. The patient improved rapidly after evacuation of the intracerebral clot. The cause of bleeding in this case also was not determined. Again, the rapid recovery was due to surgical treatment.

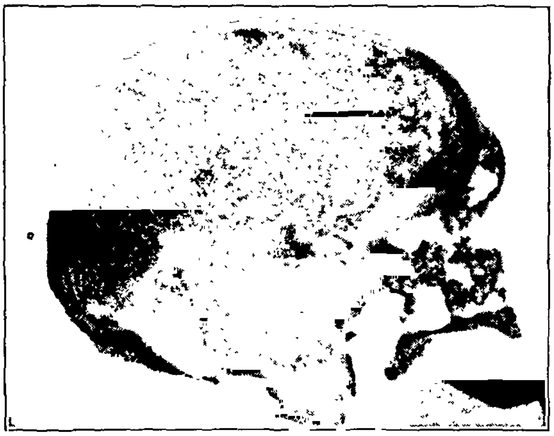
Fig. 2. (case 2).—Depression of beginning of the sylvian vessels. Vertical course of ascending frontoparietal branches; hemorrhage.

Case 3.—A white man, aged 50 and left handed, was seen in consultation with Dr. William A. Kelly of Mount Vernon. He was known to have hypertension. He had a sudden attack of hemiplegia on the left side and coma. On his admission to the hospital he was comatose and the blood pressure was 180 systolic and 120 diastolic and the pulse rate 80. Within a few hours he became conscious. The eyes deviated to the right, and he was completely aphasic and had hemiplegia. The cerebrospinal fluid obtained the next day was uniformly bloody. His condition remained stationary in that there was no recovery for twelve days. It was then that an arteriogram was done by Dr. Wingebach (fig. 3). This showed elevation of the sylvian group of vessels. At operation a subcortical hematoma about 12 cm. in diameter and 6 cm. below the surface was removed. The patient began to speak about two days later and has continued to improve.

Case 4.—A 44 year old white woman, right handed, suddenly experienced severe left frontal pain and blurring of vision at about 1 p. m. on May 13, 1947. This was followed several hours later by drowsiness, aphasia and hemiparesis on the right side. She was admitted two days later to the Mount Sinai Hospital in a lethargic condition. She had hemiplegia affecting the right side, marked aphasia and probably homonymous hemianopsia on the right. The spinal fluid was normal and the blood pressure 140 systolic and 90 diastolic, and an electroencephalogram showed a focus in the left temporoparietal area. The family and the attending physician rejected the suggestion that arteriography and puncture of the brain be carried out, and the patient was removed from the hospital. On May 22, nine days after the ictus, she was admitted to the Montefiore Hospital[3] in the same condition in which she had been from the onset. Immediately Dr. Davidoff turned down a large bone flap, inserted a needle into the temporal lobe and evacuated 25 cc. of brownish black, old blood from a distance of about 2 cm. below the surface. A small incision into the tip of the temporal lobe opened into a cavity from which similar liquid blood to the amount of about 75 cc., making a total of 100 cc., was removed by suction. Improvement set in immediately, practically on the operating table. The aphasia began to clear, she became alert, her vocabulary enlarged daily, the right hand began to move. The power of the legs returned on the fourth postoperative day, she was able to walk with support on the seventh day and she was discharged on the twelfth day. She still had considerable aphasia, and the hemianopsia persisted. Follow-up report from the family physician tells of practically complete recovery. She is back at her occupation

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[3] Dr. Leo M. Davidoff gave us permission to use his operative and follow-up notes.

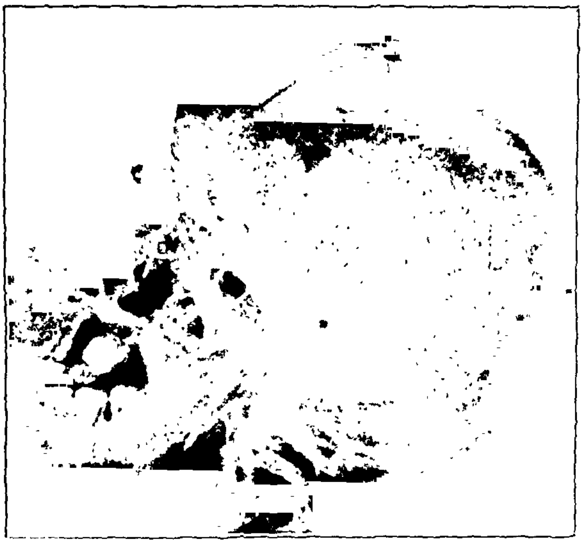

Fig. 3. (case 3).—Elevation of sylvian vessels; hemorrhage.

*Comment.*—Had the arteriogram been done after the first admission to the hospital the diagnosis and localization could have been made at once, and no delay would have ensued, with the risk of irreversible and permanent damage. Fortunately the operative result was good and the recovery excellent. The immediate and almost spectacular result further emphasizes the wisdom of evacuating blood or clot in cases of cerebral hemorrhage.

Case 5.—A white woman, aged 40, suddenly became comatose and when she came to exhibited aphasia and hemiplegia affecting the right side. The blood pressure was 130 systolic and 70 diastolic. The cerebrospinal fluid was clear under a pressure of 204 mm.; there were 7 lymphocytes, and the protein content was 76 mg. per hundred cubic centimeters. The electroencephalogram showed a focus in the left frontotemporal area. A pneumoencephalogram showed slight symmetric ventricular dilatation. Arteriography showed failure of filling of the sylvian group of vessels. The anterior cerebral artery was well filled (fig. 4). This represented a thrombosis. Trephinement was not done.

Case 6.—A white man, aged 26, experienced the sudden onset of aphasia, followed in a few hours by hemiplegia affecting the right side. During the next four months he slowly improved; then his symptoms became more severe. On examination, he had hemiplegia, hemisensory syndrome and homonymous hemianopsia on the right side and considerable aphasia. An electroencephalogram showed a striking depression of the amount and voltage of alpha activity on the left. The cerebrospinal fluid was clear, the pressure 50 mm. Pulsation of the left common carotid artery was markedly diminished. At operation the left internal carotid artery above the bifurcation was hard and without pulsation. Injection of iodopyracet into the common carotid artery visualized the external carotid circulation only. Here, too, we were dealing with a thrombosis. Obviously, trephinement was not indicated.

## SUMMARY

In our series there were 6 cases of intracerebral hemorrhage, 3 cases of cerebral thrombosis and 1 case of thrombosis of the internal carotid artery in the neck. The arteriographic findings in cases of intracerebral hemorrhage depend on the size and position of the hemorrhage and on the amount of edema of the surrounding brain tissue. Our experience is too limited thus far to describe a characteristic type of distortion of the arterial pattern. However, it is likely that the displacement of vessels is simply a mechanical process, depending entirely on the size and position of the hemorrhage. Displacement of blood vessels by tumors can be differentiated with fair assurance. In gliomas there is a fairly characteristic vascular pattern. In the presence of cysts, meningiomas and other slowly growing tumors the vessels of the brain are gradually displaced and more or less shape themselves to the contour of the tumor.

In 3 cases of cerebral thrombosis the sylvian group of vessels failed to fill in the presence of good filling of the anterior cerebral artery. Arteriographic study also led to the discovery of thrombosis of the internal carotid artery in the neck. This diagnosis was suspected in 3 cases. In the one included in this report, it was confirmed by arteriographic study. While arteriography is not new and puncture of the brain for intracerebral bleeding is not novel, the combination of the two specifically for the determination of the nature of the lesion and of its location and as a specific therapeutic measure is. A point of importance worth stressing is that all our patients with remediable hemorrhage of the brain were comparatively young, the oldest having been 50. All were in relatively good health previously. We had a number of patients of advanced age who had severe hypertension, general cardiovascular and renal damage and cerebral arteriosclerosis. Such patients are not good risks. Several died before arteriographic study could be done and others after it had been done with or without attempt at evacuation of the blood or clot. Despite these failures, we feel

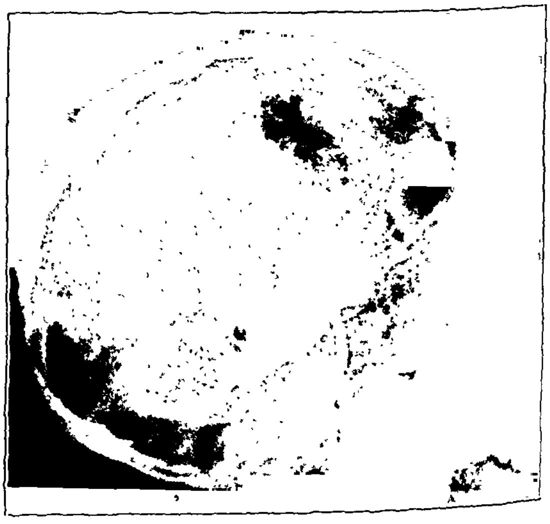

Fig. 4. (case 5).—Failure of sylvian vessels to fill; thrombosis

that the procedure could be carried out if the patient's general condition at all warrants it.

Our conclusion is that arteriography provides a safe method for the differentiation between cerebral hemorrhage and thrombosis and leads to accurate localization. It vouchsafes information not otherwise available. A pneumoencephalogram might also throw light on the diagnosis, but it is a more heroic procedure. Two patients suspected clinically of having subarachnoid hemorrhage due to vascular malformation proved, on arteriographic study, to have hematomas, which were successfully removed. Without making too sweeping claims, we feel that arteriographic study indicates the type of treatment and thus is a therapeutic measure which can in a certain number of cases hasten recovery and prevent permanent damage. Unless, therefore, one is absolutely certain that a thrombosis is present, an arteriogram is indicated.

## ABSTRACT OF DISCUSSION

Dr. Percival Bailey, Chicago: Every physician in active practice is sooner or later faced with the necessity of telling a relative of some patient with cerebral accident that he cannot do anything about it. It is distressing to a physician, whose business it is to do something about sick people. We should be continually seeking for something effective that can be done. There have been certain proposals recently, and my students and the residents in the service of internal medicine invariably ask me three questions. First, is it a thrombosis or is it a hemorrhage? If I say it is a hemorrhage, they want to know why I do not operate and take out the clot. If I say it is a thrombosis, they want to know why we do not inject dicumarol.® Are these proposals likely to be effective? Obviously you cannot prove it by 6 cases. Dr. Wechsler knows that as well as I do. We have experience in these methods of treatment with returns which later prove to be useless. We have to go, in order to prove that this method of evacuating the clot is worth while, into a series of cases in which it has been good in some and not good in others, and then we can perhaps have definite opinions as to whether it is useful or not. The same is true of treatment of thrombosis by injection of dicumarol.® The fact that the nerve cells die quickly would lead one to be hesitant about expecting too much from these methods of treatment. In the case of either hematoma or thrombosis, the destruction of nerve cells is largely due to anoxemia, and you have to cut off the oxygen supply of the blood cell only six minutes in order to have it die permanently. Therefore, it would be logical to institute whatever treatment you are going to institute within six minutes. That, of course, is unlikely to be done, and therefore whatever treatment we institute will not cause a great deal of the nerve cells to recover. Whether we can get enough of them to recover that have not been permanently killed must be proved by statistical record on a long series of cases. The method of differential diagnosis between thrombosis and hemorrhage by arteriography is feasible, I think, especially if one has skill in puncturing the carotid artery through the skin. After one has experience, it can be injected easily through the skin and, therefore, the injection becomes a rather minor procedure. However, it is not entirely without danger. We have had patients whose symptoms have been seriously increased by arteriography apparently uncomplicated.

Dr. Roland P. Mackay, Chicago: Some of Dr. Wechsler's arteriograms seem to be more like phlebograms than arteriograms, because of slight delay before making the picture. I am not sure that it is always so easy to make a diagnosis clinically between a hemorrhage and a thrombosis in the case of ictus, and the fact that Dr. Wechsler has adopted arteriography as an aid indicates that he is often dissatisfied with the clinical diagnosis. At the University of Illinois we have also made arteriographs in such cases. In most of ours the condition has proved to be thrombosis, and we have not, as far as I know, attempted the removal of any subcortical clots in the cases of hemorrhage.

Dr. George Thompson, Los Angeles: It seems to me that Dr. Wechsler has given us an interesting method of treatment for an illness that for the most part seems to us hopeless. I should like to ask him how soon after the onset of a hemorrhage he recommends the aspiration. Does he recommend an open operation on young patients, and how does this technic compare with results obtained by ligation of the common carotid artery?

Dr. I. S. Wechsler, New York: Our work grew out of a sense of impotence when confronted with a cerebral ictus. The method used is simple and has been employed in a large number of cases. The ten slides shown are but a small sample. Only in 1 patient was there aggravation of symptoms after arteriographic study. Fortunately, they receded. Generally the method is safe. It takes a little experience to learn how to distinguish between hemorrhage and thrombosis. Obviously nothing is done in cases of thrombosis. We know that thromboses occur much more commonly than hemorrhages, the ratio being about 3 or 4 to 1, but clinically it is not always easy to state with assurance whether or not there is a hemorrhage, and the arteriogram alone can speak with finality. As to when to do the arteriogram, we felt our way slowly, at first waiting four or five weeks after the ictus and then three and two and one, and now we find that there is no risk in doing it after a few days. Despite the fact that brain cells recover slowly and in some cases not at all, our experience is that recovery can occur even in severe cases in which aphasia and hemiplegia are present and even if the clot or blood is removed a week or two after the ictus. The arteriogram is of value also in cases of thrombosis, as it gives assurance when one wants to administer dicumarol® or heparin, which one would not do in the presence of hemorrhage. We do not ligate the carotid in cases of hemorrhage; we do in cases of aneurysm or other vascular anomaly. We do not ligate the internal carotid because of the risk of hemiplegia, convulsions and death. In ligation of the common carotid, the danger is minimal, as only about 50 per cent of the circulation is cut off. The point Dr. Bailey made about injection through the skin rather than cutting down on the artery is good. One must learn how to get at the artery and avoid the vein, the vagus and the phrenic nerve. Dr. Bailey does it via the skin; so does Dr. Poppen, and so do many others. The only advantage of cutting down on the artery is that, if one wishes to ligate it, it can be done at one sitting. As to venograms, it is a question of timing. Within ten seconds of injection, or at most fifteen, one gets an arteriogram. If the plate is taken after that, the blood is out of the arteries and into the veins, and a venogram is obtained. We take both even though we are not interested in venograms in these cases. With a well coordinated team, one can nearly always get a good arteriogram.

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**Coronary Disease in Males.**—Dock has recently made observations of great significance. In studying the epicardial coronary arteries of newborn infants, he found that the intima was much thicker in males than in females, and he believes this establishes the basis for the sex difference in the incidence of coronary thrombosis. Careful measurements of the intima and the media of these arteries showed that the average intima in newborn males was 26.5 per cent the thickness of the media, while in females it was only 8.2 per cent. In Dock's words: "The male therefore begins life with about three times as much coronary intima as the female." This very important observation should be confirmed in a much larger series of infants, but there is no reason to question its essential accuracy. Dock is careful to point out that it throws light chiefly on the sex incidence of coronary arterial disease, and states that hypertension and faulty cholesterol metabolism are the most important immediate causes.—H. M. Marvin, M.D., Recent Advances in the Field of Cardiovascular Disease, *Bulletin of the New York Academy of Medicine*, November 1948.

# INTRAVENOUS USE OF FLUIDS IN BRONCHIAL ASTHMA

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There probably is an advantage if a subject, especially in the field of therapy, is controversial. But when physicians cannot agree on whether or not to use a medical procedure, it runs the risk of falling into disuse by some and of being regarded in a suspicious light by others. The literature concerning the intravenous use of electrolytes in the treatment of asthma leaves one with a critical view. It is important, therefore, to gather up the procedures which have proved to be useful and to point out those features of intravenous therapy in severe asthma that should be retained as valuable adjuncts of treatment.

One of the first reports on the intravenous use of dextrose in asthma was by Schafir,[1] who in 1927 gave small doses of hypertonic solutions of dextrose intravenously over a period of days to asthmatic patients. Not only was the asthma controlled, but the patients remained free from symptoms for a period of months. Lepak [2] in 1934 reported favorably on the symptomatic control of asthma following the use of concentrated dextrose solution. Kibler [3] and Stoesser and Cook [4] have written enthusiastically of the good results obtained in treating acute severe asthma and have advanced various theories as to why intravenous administration of dextrose was of value. Its beneficial effect on the myocardium and coronary circulation, and possible antidote action on toxic metabolites, were overshadowed by the usually accepted view that treatment with dextrose improved the osmotic pressure of the body tissues, drawing surplus fluid from the edematous allergic tissues and eliminating it by way of the kidneys. There can be no question that there is congestion and edema in the mucous membranes of the reacting allergic bronchi,[5] but the action of dextrose on the edema is not explained to everyone's satisfaction. Experimental work [6] has shown that dextrose given intravenously stimulates the reticuloendothelial system, which is well known for the part it plays in inducing immunity. Thus it may also protect against allergic reactions.

Prince [6a] cited the work of Black,[7] who demonstrated hypoglycemia in patients with allergy; he gave dextrose orally—a few teaspoonfuls daily—and effected remarkable relief from asthma in those treated. Furthermore, if he omitted, or substituted another sugar for, the dextrose, there was a prompt return of the asthma. Prince added the interesting hypothesis that since epinephrine relieves asthma, and one of the actions of that drug is to liberate glycogen from the liver, it is possible that glycogen liberation is as important as the muscle-relaxing property of epinephrine. An impediment was attached to this line of reasoning when Wagner and Rackemann [8] showed that the blood sugar levels and the results of glucose tolerance tests in asthmatic patients are both normal. The confusion was complete when Wilmer and Miller [9] observed that glucose tolerance curves of allergic persons were frequently in keeping with the type seen in higher tolerance than normal. It is entirely possible that these discrepancies may have arisen as a result of differences in the state of nutrition of the different groups of patients or may have depended on a difference in carbohydrate content of the preparatory diet given prior to carrying out the glucose tolerance test.

There is a possibility that the benefit from intravenous use of dextrose, in isotonic sodium chloride solution, may come through the hydration it gives the patient. It is known that there is a loss of body water and sodium chloride during an asthmatic attack.[10] This loss of body fluid takes place in spite of edema of the shock organ which is reacting. In the case of asthma, it is the bronchi which are involved. Stoesser and Cook [11] have shown that adequate hydration and even the presence of stored water in the tissues have no adverse effect on patients with asthma. It is now generally felt that it is poor practice not to keep the patient in status asthmaticus in a well hydrated condition, even if this must be done intravenously.[12]

## USE OF OTHER ELECTROLYTES

Before pointing out the clinical indications and uses for dextrose intravenously in asthma, it might be well to indicate some of the other electrolytes which have been considered in the past. Masserman [13] and Keeney [14] used hypertonic sucrose solution with no ill effects. The latter reported striking relief in six asthmatic persons who were unresponsive to epinephrine. Unfortunately, later work has shown that hypertonic sucrose solution produces renal damage and should never be used.[15]

The work of Stoesser and Cook [16] would indicate that asthma is made worse by administration of sodium chloride, although restriction of sodium to 200 mg. daily has not had a favorable effect in relieving status asthmaticus in my experience.

The use of calcium, either orally or intravenously, is generally regarded as useless in the treatment of severe asthma.[17] Likewise, potassium has not proved

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to be of value in relieving an asthmatic paroxysm or in preventing an asthmatic attack.

In summary it would appear that about the only electrolyte which has been able to weather the fire of critical clinical trial is dextrose. This excellent and readily available material should be kept in mind in cases of severe status asthmaticus.[18]

### CLINICAL INDICATIONS AND USES FOR DEXTROSE

Indications for use of dextrose appear to be centered in the severe status asthmaticus patient in whom fluids by mouth are not well tolerated or in those patients in whom orally administered fluids reflexively produce severer asthma. In my opinion it is a means of replacing lost body water and brings about a positive water balance. All patients who have had severe asthma for any period of time are in need of additional caloric intake. Five per cent dextrose administered in distilled water serves as a rapid means of furnishing calories and replacing depleted glycogen stores.

Dextrose in concentration of 10 per cent to 50 per cent has repeatedly been advocated. In my experience, however, 5 per cent dextrose in distilled water is more desirable. Such solutions are isotonic and will supply both the water and calories, a physiologic need in the status asthmaticus patient. The quantity to be given depends on the degree of dehydration of the patient, but, in general, it need not be more than 3,000 cc. in any twenty-four hour period. It is superior to isotonic sodium chloride solution in that there is good evidence that sodium chloride will make the asthma worse.[16]

Contraindications to the intravenous use of dextrose are few. Quattlebaum [19] pointed out that a weakened myocardium is jeopardized by the rapid increase in blood volume which the osmotic action of dextrose produces. "Speed shock" has been known to occur, especially in cases in which hypertonic solutions were used. Anginal pain is said to be produced in some patients with angina pectoris by intravenous use of dextrose. These objections may be minimized if 5 per cent dextrose in distilled water is given, slowly and intravenously (i. e., not more than 500 cc. per hour).

### CONCLUSION

It may be said that the intravenous use of dextrose in the treatment of acute status asthmaticus is of value. It is used primarily to correct alterations of dehydration and to furnish a readily usable source of energy. Intravenous use of saline solutions should be avoided.

## ABSTRACT OF DISCUSSION

DR. J. W. THOMAS, Richmond, Va.: I agree that the intravenous use of electrolytes in the treatment of asthma is still up in the air and requires careful consideration. It is necessary that the various stores of body water remain in a state of equilibrium and that the osmotic pressure exerted by these solutes be within a normal range if a state of health is to be maintained. The four routes of release of fluids from the body include the skin, lungs, gastrointestinal tract and kidneys. The balance of fluids is primarily maintained by the kidneys. It is felt by some workers that there is no close relationship between the transfer of sodium and potassium cation from the intracellular and extracellular phases, and it is further recognized that the oral or parenteral administration of potassium will not necessarily produce an increase in the intracellular concentration. However, if dextrose is given along with the potassium, there will be an increase in some intracellular sodium, and this will be transferred to the extracellular spaces. The maintenance of acid base balance in the body is influenced by the amount of sodium contained in the cells, although it may be in minimal quantities. We are all familiar with the fact that the hydrogen ion concentration of the body fluid is dependent on certain buffers in the blood. The derangement of water and electrolyte metabolism may be produced in many ways and is a component of numerous diseases. Some of those disorders associated with retention of water and electrolyte include: (1) lymphedema, (2) angioneurotic edema, (3) cardiac origin, (4) renal origin and (5) portal obstruction. When one considers that certain severe episodes of asthma might be related to the menstrual cycle, it has to be observed that there is retention of sodium during the intermenstrual and premenstrual periods. It is also observed that the coincident administration of desoxycorticosterone is associated with the retention of sodium. Dehydration, which is frequently observed in asthmatic persons, is an abnormal state of the body water and electrolytes in which the volume of extracellular fluid is diminished and which is accompanied with low concentrations of the extracellular sodium and chloride. When there is a loss of extracellular electrolytes in dehydration, there is also a loss of protein. The skin of many asthmatic persons is dry and inelastic, and some of the mucous membranes appear parched; but these respond with replacement. When one is in doubt, it is always desirable to include blood nonprotein nitrogen as well as urea and other constituents of the blood. In many asthmatic patients whose condition is severe, there is excessive sweating, which may cause some shifting water and electrolyte balance.

DR. EUGENE FOLDES, New York: It seems that a number of diseases are due to general retention of water and minerals. Some diseases are due also to the fact that in response to certain stimuli the water and minerals previously retained throughout the body become mobilized and then accumulate locally in a particular organ or organs. These diseases are usually classified under various headings. For example, epilepsy and migraine, while apparently manifestations of temporary intracranial liquid accumulation, are customarily grouped with the diseases of the nervous system. Eclampsia of pregnancy is attributed to toxemia and eclampsia of infancy to spasmophilia, whereas they also seem to be produced by intracranial liquid retention. If liquid retention develops in the labyrinth of the ear, Ménière's syndrome, usually considered a disease of the ear, is present. If liquid retention occurs in a joint gout, classified as a disturbance of the uric acid metabolism, is indicated. Certain temporary liquid retentions in the skin, in various parts of the respiratory tract and so on come under the heading of allergic diseases; so does, in particular, bronchial asthma, with the attendant edema of the bronchi. In bronchial asthma many factors contribute to the development of the edema of the bronchi. One of these is a local predisposition for the development of edema, the local predisposition being produced by local circulatory changes. Another factor is a disturbance of the general water and electrolyte metabolism, consisting of a sudden mobilization of liquids which then pour from the tissues into the circulation. Some of these circulating liquids are retained in the bronchi, leading to their edema and the clinical manifestations of bronchial asthma. Others will be eliminated through the kidneys, leading to water and salt diuresis and, temporarily, to negative liquid balance. This concept, which I described fifteen years ago, was confirmed by Dr. Sheldon's observations of a negative liquid balance in the asthma attack. But, I would like to point out that injection of 5 per cent dextrose, as suggested by Dr. Sheldon, may lead to liquid retention, and liquids, if retained, may become mobilized and thus may cause the asthma attack. Prevention of mobilization of liquids is necessary, and that consists of prevention of retention of liquids. This in turn can be accomplished by the administration of a diet which is high in proteins and vitamins, but is restricted in carbohydrates, fats, sodium chloride and water. This diet, which I call antiretentional, is effective in many cases of bronchial asthma and is recommended for consideration.

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# VAGOTOMY

## Clinical Experiences During Four Years

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Complete vagotomy was introduced as a main surgical treatment for peptic ulcer by Dragstedt and Owens [1] in 1943. It has been tried since by our group,[2] by Moore and his associates,[3] Machella and his co-workers,[4] Walters,[5] Harkins and Hooker,[6] Paulson and Gladsden,[7] Sanders,[8] Crile,[9] Schoen and Griswold,[10] Schauffer,[11] Beattie [12] and others. Most authors describe favorable results and are continuing use of the operation.

It is becoming increasingly apparent that the usefulness of vagotomy is limited by occurrence of side effects or complications rather than by frequent failure of healing of the ulcers. All authors have confirmed original observations of Dragstedt that usually after vagotomy acidity of gastric secretions is reduced, motility of the stomach is altered and ulcers heal. Duration of these effects must be learned. Study groups [13] that began to use the operation four to six years ago will soon be able to report important late follow-up results.

Justification for use of vagotomy will depend on efficiency of nonoperative or medical treatments, results of other forms of gastric surgical treatment and general effects of interrupting the vagus nerves. Recent reviews of medical and surgical treatments of peptic ulcer have been presented by Bockus,[14] Boles,[15] Ruffin [16] and others. Value and limitations of gastroenterostomy for ulcer have been reported recently by Cooper [17] and of resection by Gardner.[18] General function of the vagus nerves and effects of removal have been presented by Alvarez [19] in a review of the literature of the last sixty years pertaining to experimental and clinical study.

Other reports are directly related to this presentation. Winkelstein [20] and Winkelstein and Berg [21] in 1937 emphasized persistence of acid in gastric secretions of some patients treated by gastroenterostomy or partial resection. They observed an increased incidence of stoma ulcer in these patients and recommended supplementing gastroenterostomy or resection with division of the anterior vagus nerve. This had been done in a group of patients followed as long as nine years. Free acid in gastric secretions frequently persisted. As reported in earlier and subsequent literature, this has been the experience of others who used incomplete vagotomy.

Current efforts are directed toward complete vagotomy. Anatomic studies by Walters and his co-workers,[22] Miller and Davis,[23] Doubilet, Shafiroff and Mulholland [24] and others have indicated that variations of location of the two main vagus trunks and distribution of branches often result in aberrant nerve strands. They expressed the belief that these could be overlooked during transthoracic or subdiaphragmatic dissection.

Interpretation of results of vagotomy must take into consideration completeness of division of the nerves. Therefore, physiologic tests for completeness have been devised. The insulin test popularized by Hollander and his associates [25] has been adopted by most study groups.[26] Stein and Meyer [27] have further studied this test and reviewed related literature. Each group studying vagotomy has described increase of acidity of gastric secretions postoperatively in occasional patients during or after hypoglycemia due to insulin. Dragstedt and his associates [28] expressed the opinion that reduction of volume of gastric juice secreted during the night and decrease over 60 per cent in total hydrochloric acid output from the stomach are equally important evidence for completeness of operation. We observed [2] in patients treated by vagotomy that decrease

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The surgical resident staff of Duke University School of Medicine did the routine work that made this study possible, and Drs. J. M. Ruffin and D. P. White Jr. aided as medical consultants.

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of acidity of secretions from the fasting stomach was least among some with greatest obstruction and retention. Since acidity of fasting gastric secretions is not always related to increase of acid following administration of insulin, it is probable that some chemical stimulus or intrinsic gastric secretory mechanism not related to the vagus nerves influences acidity of gastric secretion after vagotomy.

Experiences with vagotomy will be presented in four parts: (A) general results of transthoracic vagotomy for duodenal ulcer, (B) general results of transthoracic or transabdominal vagotomy and drainage for duodenal ulcer, (C) general results of vagotomy for gastric ulcer and (D) general results of vagotomy for stoma ulcer. Experiences are derived from study of 104 patients who had intractable, frequently recurring or complicated peptic ulcer for which they were treated by vagotomy between June 1944 and February 1948. They have been followed through June 1948. The current status of each was ascertained during office visits and by questionnaire. Studies were made in the hospital during the week before operation and during the first two weeks afterward. With some exceptions hospital studies were again repeated three months to one year after vagotomy and thereafter at yearly intervals. Physiologic aspects of these studies presented before this section were reviewed in THE JOURNAL [29] and will be brought up to date in another report.[30]

### A. GENERAL RESULTS OF TRANSTHORACIC VAGOTOMY FOR DUODENAL ULCER (49 PATIENTS)

Thirty-six of the 49 patients had transthoracic vagotomy only as treatment and have not yet required secondary gastric surgical treatment (table 1, A). Symptoms of ulcer had been present three months to thirty-seven years, with an average of ten. The one operation at three months was performed because of pain intractable during medical management in the hospital. Follow-up studies ranged from thirteen to forty-eight months, with an average of twenty-nine. There was no operative death. Hospital stay after vagotomy varied from seven to thirty-nine days, with an average of thirteen. Gastric retention requiring dietary treatment, nightly aspirations of residual gastric content and frequently use of urecholine® (carbaminoyl-beta-methylcholine chloride) necessitated the longer stays. One patient had a cerebral accident and died ten months after vagotomy. Results summarized in table 1 include those for this patient, dealing with his condition before death.

At the time of writing, 30 of the 36 patients had complete relief from discomforts and restrictions formerly associated wtih ulcer. Six occasionally experienced mild epigastric discomfort or ulcer-like distress, which they described as much less troublesome than their former pain. They did not restrict diet. In 1 of these 36 patients a small gastric ulcer developed four months after vagotomy. This did not produce symptoms and healed spontaneously.

At least occasionally, 25 of the 36 patients had minor discomforts, unlike those before vagotomy. These were epigastric fulness, sensations of delayed emptying of the stomach after eating, bowel cramps or looseness of stool. To determine the significance of these symptoms each patient was asked by questionnaire whether he was completely satisfied, moderately satisfied or dissatisfied with the results of vagotomy. The answers are tabulated in table 1 (A 1). Each of the 23 patients completely satisfied and several of the 13 moderately well satisfied patients volunteered enthusiastically favorable remarks about results of operation.

Each patient was also asked his ability to work. Before vagotomy few had been able to work full time. The statements of ability to work are given in table 1 (A 2). Twenty-nine work full time. Three of the 6 able to work only half-time gave periodic diarrhea as the most important cause of disability. One described discomfort immediately after eating, 1 weak spells and 1 bowel cramps as the cause. The patient able to work less than half-time was treated for ulcer and hypertension by vagotomy and splanchnicectomy; this patient later retired from work because of progressive hypertensive vascular disease.

TABLE 1.—*Results of Transthoracic Vagotomy for Duodenal Ulcer (49 Patients)* *

| | No. of Patients |
|---|---|
| A. Transthoracic vagotomy only | 36 |
| 1. Satisfaction of patient | |
| Complete | 23 |
| Moderate | 13 |
| Dissatisfied | 0 |
| 2. Ability to work | |
| Full time | 29 |
| Half time | 6 |
| Less | 1 |
| 3. Reported weight relative to "normal weight" before vagotomy | |
| Greater | 12 |
| Equal | 14 |
| Less | 10 |
| B. Observation and secondary gastric operation required | 13 |
| Retention, gastroenterostomy | 10 |
| Persistence of ulcer, resection | 1 |
| Recurrence of ulcer, pyloroplasty | 1 |
| Intussusception, reduction, pyloroplasty | 1 |

* Frequency of good results, 1 in 2; frequency of secondary gastroenterostomy, 1 in 5, and frequency of postoperative ulcer, 1 in 25.

Each patient was also asked his weight and what he regarded as his normal weight. Most had lost weight before vagotomy because of ulcer. A comparison of normal and reported weights is presented in table 1 (A 3). Twelve patients considered their weight greater than normal and 14 normal. Although 10 patients stated that they now weigh less than normal, stated weights seem compatible with the increased activity and no patient appeared undernourished.

Complaints or symptoms evidently directly related to side effects of vagotomy will be described in more detail in section E of this paper.

Thirteen patients had transthoracic vagotomy for duodenal ulcer as their primary surgical treatment and subsequently secondary gastric surgical treatment (table 1 B). Histories and examinations before vagotomy were similar to those of the 36 patients treated by vagotomy alone. (Patients apparently seriously obstructed were treated by gastroenterostomy before or at the time of vagotomy and are presented in section B.) Nevertheless, retention necessitated secondary gastroenterostomy in 10. Of the 10, 4 required drainage within the first month after vagotomy (average twenty days). Before vagotomy 1 of these 4 had retention of 5 per cent and another 30 per cent, judged by barium sulfate in the stomach six hours after ingestion. Two did not have retention. Pyloroplasty was used for drainage in 3 and gastroenterostomy in 1.

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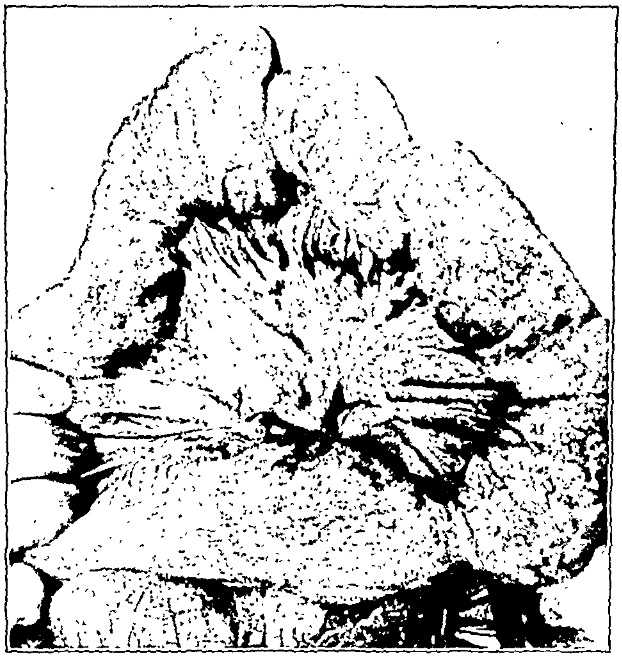
The remaining 6 patients were treated longer between vagotomy and drainage. Six hour retention of barium sulfate did not occur before vagotomy. After operation 1 patient, with 50 per cent retention twelve days postoperatively and 40 per cent retention forty-five days after operation, had a single hematemesis. After twenty-seven days of medical treatment 100 per cent retention of barium sulfate at six and twenty-four hours developed. Exploration revealed no evidence of ulcer or scar tissue. It was therefore assumed that obstruction and retention were caused by changes of motility following vagotomy. Pyloroplasty relieved retention. The second of these 6 patients had 90 per cent and then 30 per cent six hour retention of barium sulfate during the first year and then noticed tarry stools, which when examined contained occult blood. Exploration did not reveal evidence of ulcer or organic obstruction. Pyloroplasty was performed, and bleeding or obstruction did not recur. Three patients were treated five, six and seven months, respectively. In spite of limitation of diet, frequent residual aspirations and urecholine® given orally or subcutaneously, they continued with 85 per cent or more six hour retention, complained of sensation of fulness, malodorous eructations and weakness and exhibited decided loss of weight. Pyloroplasty in each relieved retention. The sixth patient treated by drainage had an elective pyloroplasty. Ninety-five and 90 per cent retention had persisted during eighteen months, and the patient, although getting along only 15 pounds (about 7 Kg.) below his "normal" weight, complained of a feeling of fulness after eating and weakness. He improved after drainage. This is the only patient in this group in whom exploration revealed evidence of partial obstruction of the duodenum by scar tissue.



Reverse intussusception of the jejunum occurring fifteen months after transthoracic vagotomy without gastroenterostomy. The patient had frequently recurring episodes of severe colicky abdominal pain.

In the remaining 3 patients requiring secondary gastric surgical treatment late after transthoracic vagotomy, exploration was done because of abdominal pain. One complained of abdominal pain since vagotomy and described occasional occurrence of tarry stools. At operation an active duodenal ulcer was seen. Vagus fibers seem completely divided, and a subtotal gastric resection was performed. Fifteen months later pain, tarry stools and hematemesis were again reported. The second patient experienced acute epigastric pain ten months after vagotomy. This persisted one week. Exploration revealed a penetrating ulcer 3 mm. in diameter, which was located in the anterior wall of the duodenum and appeared ready to perforate. A pyloroplasty was performed, and there was no further recurrence of pain. The third patient entered the hospital fifteen months after vagotomy, complaining of frequently recurring episodes of severe abdominal pain. The last episode had persisted eight days. After a week of study, exploration was performed. A reverse intussusception was found 2 feet (61 cm.) below the ligament of Treitz (figure). Although a small amount of free fluid was present in the abdomen, strangulation had not occurred. Another area of intussusception, forward in variety, was seen in the ileum. Both were easily reduced. Because of preceding roentgenologic evidence of retention, pyloroplasty was also performed. There was no evidence of duodenal obstruction by scar tissue. Abdominal pain did not recur.

Clinical results following secondary drainage after transthoracic vagotomy in these 13 patients are not included in the tables and will be described briefly. Follow-up studies since secondary operation range from four to thirty-four months, with an average of eighteen. Hospital stay after drainage varied from ten to twenty-two days, with an average of thirteen. The 4 patients requiring drainage during the first month after vagotomy stated they were completely satisfied. The remaining 9 were treated longer between vagotomy and drainage. One was dissatisfied and unable to work because of recurrence of pain, hematemesis, melena and weakness sixteen months after secondary gastric resection. Another patient was dissatisfied, describing every possible symptom or complication. Neither of these 2 will return for study.

The remaining 7 patients treated longer between vagotomy and drainage were moderately well satisfied. The one in whom perforation of a duodenal ulcer threatened nine months after vagotomy had diabetes with glycosurea and persistent elevation of blood sugar values. He later required restricted diet and insulin. Another, who had reduction of intussusception and pyloroplasty reported seven months later sensations of fulness after meals and weakness. Of the remaining 5 patients 3 described fulness after eating, 1 diarrhea and 1 weakness as the cause of incomplete satisfaction.

Because of gradually developing recognition of the frequent necessity for secondary gastric surgical treatment, poor results when operation was delayed and occasional persistence or recurrence of ulcer, transthoracic vagotomy alone was abandoned as treatment for duodenal ulcer in late summer of 1947. Results of combined operations described in the next sections of this paper are more encouraging.

### B. GENERAL RESULTS OF TRANSTHORACIC OR TRANSABDOMINAL VAGOTOMY COMBINED WITH GASTROENTEROSTOMY AND USED AS A TREATMENT FOR DUODENAL ULCER (29 PATIENTS)

Twenty-nine patients with duodenal ulcer were treated by transthoracic or transabdominal vagotomy combined with pyloroplasty, exclusion[31] or gastrojejunostomy. There was 1 operative death. This was of a patient treated by transthoracic vagotomy and at the same time transabdominal pyloroplasty. He died seventeen days after the two operations of gastric perforation, peritonitis and intestinal hemorrhage. Results in the remaining 28 patients are presented in table 2.

Five of these 28 patients had transthoracic vagotomy and transabdominal gastroenterostomy. Drainage operations were: pyloroplasty in 2, exclusion in 2 and gastrojejunostomy in 1. Two of the drainage operations were performed several weeks before vagotomy and three at the time of transthoracic operation. Symptoms of ulcer had been present eight to twenty-eight years, with an average of seventeen. Follow-up studies ranged from twenty-three to thirty-two months, with an average of twenty-six. Hospital stay after operation varied from nine to thirty-one days, with an average of eighteen. Myocardial infarction developed in 1 patient fourteen months after operation, and death ensued. Results in table 2 include those for this patient and deal with his condition before death.

The remaining 23 patients had subdiaphragmatic vagotomy. Drainage was accomplished by pyloroplasty in 12, exclusion in 9, gastrojejunostomy in 1 and subtotal gastrectomy in 1. Symptoms of ulcer had been present six to twenty-two years, with an average of twelve. Follow-up studies ranged from four to nineteen months, with an average of ten. Hospital stay after operation varied from ten to twenty-two days, with an average of fifteen. There was no operative mortality.

Since there has been no evident difference between results of transthoracic and transabdominal vagotomy, the general clinical results in all 28 patients will be presented together. The single operative death has been described. It occurred among 4 patients treated during one operation by transthoracic vagotomy and transabdominal gastroenterostomy. The immediate postoperative course of the other 3 was febrile, so that use of two incisions has been abandoned. In 1 patient treated by subdiaphragmatic vagotomy, disruption of his abdominal wound occurred on the twelfth postoperative day; five months later adhesive obstruction of the small intestine occurred, which was easily relieved with a Miller-Abbott tube. In another malfunction of the gastroenterostomy stoma developed, requiring enteroenterostomy after seventeen days. Gastroenterostomy stomas frequently functioned poorly during the first several weeks, but with this one exception responded to nonoperative treatment.

The subsequent clinical course of these 28 patients has been encouraging. Each was satisfied with complete relief from discomforts and restrictions formerly associated with ulcer. At least occasionally, however, 12 experienced minor discomforts, such as uncomfortable sensations after eating, bowel cramps or looseness of stools. The significance of these symptoms, determined by statements concerning satisfaction, is presented in table 2. The 21 patients completely satisfied and working full time each volunteered enthusiastic remarks concerning results of vagotomy and drainage. Of the 7 patients moderately well satisfied or able to work only half-time, causes of incomplete satisfaction were given as fulness or discomfort after eating in 3, gas pains in 3 and weakness when hungry in 1.

Examination of comments and details of answers in questionnaires indicates that patients treated by vagotomy and concurrent drainage were the most satisfied of the entire 104 presented in this paper. Nevertheless, comparison of stated weight and "normal weight" (table 2 [3]) indicates that only 16 have gained to or above what they considered their normal weight. The 12 who were less than normal weight were, however, apparently well nourished.

TABLE 2.—*Results of Vagotomy and Concurrent Gastro-Enterostomy for Duodenal Ulcer (28 Patients)*

| | No. of Patients |
|---|---|
| Transthoracic vagotomy and transabdominal gastroenterostomy | 5 |
| Transabdominal vagotomy and gastroenterostomy | 23 |
| Total | 28 |
| 1. Satisfaction of patient | |
| Complete | 21 |
| Moderate | 7 |
| Dissatisfied | 0 |
| 2. Ability to work | |
| Full time | 21 |
| Half time | 7 |
| Less | 0 |
| 3. Reported weight relative to "normal weight" before vagotomy | |
| Greater | 2 |
| Equal | 14 |
| Less | 12 |

### C. GENERAL RESULTS OF VAGOTOMY AS A TREATMENT FOR GASTRIC ULCER (7 PATIENTS)

Seven patients with gastric ulcer were treated by vagotomy. Symptoms of ulcer had been present three, five, six, nine, ten, eleven and thirteen years. Operations were transthoracic vagotomy alone in 5 and transabdominal vagotomy with concurrent pyloroplasty in 2. Hospital stay after operation ranged from seven to fifteen days, with an average of twelve. Follow-up studies continued ten to thirty-three months, with an average of twenty-three. Results determined by questionnaire are presented in table 3 (A).

Five of these 7 patients described complete satisfaction (table 3 [A 1]). Of these, 4, who had ulcers 1.5 to 3 cm. in diameter located in the antrum, were able to work full time. Ulcers healed in 3 of these 4, as judged by roentgenologic examination. In the fourth, the patient with the largest ulcer, there was recurrence one year after vagotomy alone. The crater then was one-third its original size. It healed spontaneously within six weeks. The fifth patient, who was completely satisfied, had a juxtaesophageal ulcer, 3.5 cm. in diameter, penetrating into the left lobe of the liver. After subdiaphragmatic vagotomy and pyloroplasty bleeding stopped, symptoms subsided, the patient regained normal weight and roentgenologic examination no longer revealed an ulcer. Nevertheless, this patient, at the age of 67, worked only half-time.

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[31] Exclusion refers to diversion of the pathway for gastric content away from the duodenum by dividing the stomach near the pyloric sphincter, inverting the short distal segment of the antrum, bringing the proximal divided end of the stomach through the transverse mesocolon and connecting it to the proximal jejunum by an end-to-side gastrojejunostomy.

The patient moderately well satisfied had intractable pain from an ulcer 2.5 cm. in diameter, located high on the lesser curvature and penetrating into the liver. Pain was relieved immediately after transthoracic vagotomy, and the ulcer healed within three months, as judged by roentgenologic examination. During the next two and a half years, however, moderate pain similar to that before vagotomy recurred three times, subsiding spontaneously on each occasion without treatment. The present roentgenologic appearance of the stomach is not known, since this patient did not return for further examination.

TABLE 3.—*Results of Vagotomy for Gastric and Stoma Ulcer*

| | A. Gastric Ulcer | B. Stoma Ulcer | |
|---|---|---|---|
| | No. of Patients | No. of Patients | No. of Patients |
| Transthoracic vagotomy alone | 5 | .. | .. |
| Transabdominal and pyloroplasty | 2 | .. | .. |
| Total | 7 | .. | .. |
| Previous gastroenterostomy | | | |
| Transthoracic vagotomy | .. | 9 | .. |
| Subdiaphragmatic | .. | 1 | .. |
| Total | .. | 10 | .. |
| Previous subtotal resection | | | |
| Transthoracic vagotomy | .. | .. | 8 |
| Subdiaphragmatic | .. | .. | 1 |
| Total | .. | .. | 9 |
| 1. Satisfaction of patient | | | |
| Complete | 5 | 5 | 5 |
| Moderate | 1 | 1 | 3 |
| Dissatisfied | 1 | 1 | 1 |
| 2. Ability to work | | | |
| Full time | 4 | 7 | 5 |
| Half time | 2 | 2 | 1 |
| Less | 1 | 1 | 3 |
| 3. Reported weight relative to "normal weight" before vagotomy | | | |
| Greater | 1 | 1 | 1 |
| Equal | 2 | 4 | 3 |
| Less | 4 | 5 | 5 |

The patient who was dissatisfied had a crater 3.5 cm. in diameter, located along the lesser curvature 3 cm. below the esophagus. Symptoms had been present ten years. Vagotomy was performed without drainage. It relieved pain, but five months later tarry stools reappeared, anemia developed and the size of the ulcer crater had not changed. Because of the possibility of malignancy a subtotal resection was performed. Pathologic examination confirmed the diagnosis of benign gastric ulcer. After resection the weight decreased, bowel habit changed to six or eight soft stools per day and the patient was dissatisfied, being able to work less than half-time.

### D. RESULTS OF VAGOTOMY AS A TREATMENT FOR STOMA ULCER

Nineteen patients had transthoracic or transabdominal vagotomy for stoma ulcer. In 9 stoma ulcer followed subtotal resection of the stomach and in 10 gastroenterostomy (table 3 [B]). The duration of symptoms of ulcer ranged from three to twenty-eight years, with an average of seventeen. Operations were transthoracic vagotomy in 17 and subdiaphragmatic vagotomy in 2. There was no operative mortality. Hospital stay after vagotomy ranged from seven to fifteen days, with an average of ten. Follow-up periods ranged from seven to forty-seven months, with an average of twenty-three.

Five of the 10 patients treated for stoma ulcer occurring after gastroenterostomy reported complete satisfaction (table 3 [B 1]). Of these, 2 have had no difficulty since vagotomy. During the first two years after vagotomy, however, the remaining 3 experienced episodes of acute colicky abdominal pain. Study during three admissions to the hospital of 1 patient and two of another failed to reveal the causes of pain. Attacks subsided spontaneously and did not recur. The third patient experiencing abdominal pain was readmitted repeatedly, and exploration was done twice. During the first operation a strangulated Meckel diverticulum was found and removed. Also, because of preceding roentgenologic evidence of retention distal to a high gastroenterostomy stoma, a pyloroplasty was performed. The second exploratory operation failed to reveal any cause of pain. Episodes of colicky abdominal pain continued, recurring every few weeks until two years after vagotomy, when they ceased spontaneously.

Roentgenologic studies of 2 of these 5 patients revealed that stomas did not function during the first several months after vagotomy opening and that functioning occurred only after one or two years. When one opened, a star-shaped deformity was evident. This later disappeared. Ulcer symptoms did not recur, and each of the 5 patients was well pleased with results.

Four of the 10 patients treated by vagotomy for stoma ulcer developing after gastroenterostomy described moderate satisfaction. Cause of incomplete satisfaction in 1 patient was reported as nervousness, fulness after eating and the occasional occurrence of frequent watery bowel movements. Similarly, another reported nervousness, "gas on the stomach" and inability to sleep. A third described watery bowel movements twice a week. The fourth simply stated that he did not feel quite normal.

The last patient with stoma ulcer after gastroenterostomy was definitely dissatisfied with results. A complicated gastrointestinal disturbance existed before vagotomy. Afterward, although the stoma ulcer healed and the gastroenterostomy functioned well, diarrhea and vomiting became worse. Two years after vagotomy, in spite of treatment with a variety of medicines and parenteral alimentation during repeated admissions to the hospital, he died at home.

Five of the 9 patients treated for stoma ulcer developing after previous subtotal gastric resection described complete satisfaction. One particularly exemplified benefit from vagotomy. During eighteen years she had had repeated massive hemorrhages. These recurred after a gastroenterostomy and subsequently after subtotal gastric resection. Hemorrhages requiring transfusions were occurring every four to six weeks before vagotomy. During the two years that followed operation there was no recurrence of the bleeding. The remaining 4 completely satisfied patients described no ulcer-like symptoms and no inconvenient side effects.

Three of the 9 patients treated by vagotomy for stoma ulcer following resection reported moderate satisfaction. One, two years after vagotomy, stated that diarrhea and nausea became worse during the second year and that strength and weight were less than before resection or vagotomy. Two described troublesome diarrhea without reduction of weight. Both had difficult emotional and environmetntal problems.

The last patient of this group was dissatisfied because of recurring episodes of severe colicky abdominal pain. Twenty-two months after vagotomy and six days after onset of one attack exploratory celiotomy was performed. A forward intussusception of the jejunum and a smaller one in the ileum were found. There was no evidence of strangulation, and reduction was accomplished easily. Examination of the remainder of the small intestine revealed abnormal variations of caliber and shape in several segments of jejunum. After reduction mild episodes of pain again occurred.

## COMMENT

The 104 patients with peptic ulcer described herein each presented symptoms or observations currently acceptable as indications for subtotal or total gastric resection. Patients were not selected except that some were referred because resection had failed. Most were chronic invalids. Treatment was accomplished with but 1 operative death. Although vagotomy or vagotomy and drainage has occasionally produced results which are not entirely satisfactory, we believe that, considering the type of patients treated, rate of rehabilitation has been respectably high. Study has revealed information concerning some of the less satisfactory results.

So far there has been persistence or recurrence of symptoms of ulcer only among patients treated with vagotomy alone. Of 49 originally treated for duodenal ulcer 6 experienced mild ulcer-like symptoms after vagotomy but did not require treatment. One had persistence and another recurrence of duodenal ulcer requiring operation. Among 5 patients with gastric ulcer treated by vagotomy without drainage, 1 had recurrence of mild symptoms, 1 temporary recurrence of a crater and a third persistence of ulcer with symptoms necessitating operation. Ulcer has not as yet occurred after vagotomy and gastroenterostomy, nor have stoma ulcers, consistently healed by vagotomy, recurred.

Intussusception occurred in 2 patients and unexplained severe abdominal colicky pain in 8. These complications occurred in patients treated by vagotomy alone for duodenal ulcer or for stoma ulcer and have not occurred among patients treated by vagotomy and concurrent gastroenterostomy. They may be related to changes of motility of the small intestine produced by vagotomy, and they seem to occur in patients with abnormalities or deficiencies probably associated with retention or with stoma ulcer. Fortunately, each of these patients was asymptomatic at the time of writing.

Serious diarrhea occurred in 3 of 12 patients with vagotomy and resection, in 1 of 10 patients with ulcers of gastroenterostomy stomas treated by vagotomy alone and in 1 patient with retention after vagotomy alone and treated by secondary gastroenterostomy. It did not occur among the 36 patients with vagotomy alone or among the 28 patients treated by vagotomy and concurrent drainage.

Other complications, such as bowel cramps, discomfort after eating and mild periodic diarrhea, have occurred most frequently among patients with vagotomy alone, with vagotomy and late secondary drainage and with vagotomy and resection. They have occurred least often in patients treated by vagotomy and concurrent gastroenterostomy. In general these side effects of vagotomy, when they occur, decreased or disappeared within two years.

Two additional observations deserve comment. One is that complete healing of stoma ulcer, usually prompt, has evidently required a year and a half to two years in 2 patients. The other is that patients in whom gastroenterostomy for retention developing after vagotomy alone was delayed longer than several months were only moderately well satisfied. Symptoms of fulness after eating and weakness persisted.

Although much longer periods of observation are necessary before vagotomy may be finally evaluated, it is our present opinion that explanation and better treatment of side effects will be necessary before vagotomy may be considered a standard treatment of peptic ulcer.

Laboratory studies[30] on the 104 patients reported herein indicate that effects of vagotomy on gastric motility and on acidity of fasting secretions have usually persisted. In half of the patients tested two to four years after operation, however, there were large amounts of free acid in gastric secretions obtained after the occurrence of hypoglycemia due to insulin.

## CONCLUSIONS

1. Although vagotomy without gastroenterostomy yielded good results in half of the patients, occurrence of poor results in the remaining half, including retention requiring secondary gastroenterostomy and occurrence of postoperative ulcer, indicates that this procedure has not been a satisfactory surgical treatment for duodenal ulcer.

2. Vagotomy with concurrent gastroenterostomy has yielded encouraging results as a treatment for duodenal ulcer.

3. Vagotomy has effected healing of stoma ulcer occurring after gastroenterostomy or subtotal gastric resection.

4. Vagotomy has aided in the treatment of benign gastric ulcer, but persistence or recurrence has been frequent. Gastroenterostomy should be done in addition to vagotomy if possible in those few instances in which this operation is elected in preference to gastric resection.

5. In general, side effects of vagotomy seem to diminish or disappear with the passage of time following operation.

# NEWER ASPECTS OF PEPTIC ULCER THERAPY

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In the past year there have been presented to the medical profession innumerable articles covering every phase of the diagnosis and treatment of peptic ulcer. We believe the proper interpretation of this situation is that so much investigative work and radical changes in the diagnosis and treatment of peptic ulcer are occurring almost daily that it frequently becomes necessary to consider what this progress means to the physician who must apply these advances in the active practice of medicine.

The scope of the problem is demonstrated by the fact that it is admitted that there are in the United States at the present time 4,000,000 persons with peptic ulcer. That these advances in the treatment of ulcer demand consideration is evidenced by the establishment, by the American Gastroenterological Association, of a national committee to study and report on all of these phases in order that, in as short a period as possible, the profession may be acquainted with an accurate and clear interpretation of the ulcer problem.

## ETIOLOGIC ASPECTS OF PEPTIC ULCER

Physiologists, clinicians and surgeons are almost universally agreed that peptic ulcer as it occurs in the stomach and duodenum is directly related to the presence of hydrochloric acid and pepsin in appreciable amounts in the gastric contents. At present the significance of the factor of local tissue or cell resistance is occupying the minds of many investigators, and its importance remains to be established. This accepted physiologic principle will serve as a basis for our discussions. Most of us are willing to accept the concept that the peptic ulcer produced in Mann-Williamson dogs or the histamine-produced ulcer can best be controlled or prevented by anacidity produced by antacid therapy or surgical methods.

## MEDICAL VAGOTOMY

The outstanding results of the recent work on surgical vagotomy as presented by Dragstedt,[1] and now recognized by many workers, are: the relief of pain, transitory reduction of the volume and concentration of acid, alteration in tone and the possible elimination of some factor X originating centrally and mediated over vagal pathways, the last three of which influence ulcer healing.

These concepts have long been appreciated by gastroenterologists and utilized in the medical management of ulcer. Medical vagotomy consists in the blockade of these pathways by adequate doses of the belladonna series. This means the administration of such a product as extract of belladonna to tolerance doses. By tolerance doses we mean the use of the product in much the same way as we were taught to use digitalis. There must be definite evidence of dryness of the mouth and blurring of vision. In our experience no product except one of the belladonna group accomplishes this result.

In addition, medical vagotomy implies an attack on the source or origin of these impulses by carefully educating the patient. It must be explained in understandable terms that fatigue, worry, anxiety, frustration and fear can cause both increased gastric secretion and alteration in motility and tone. Neither drugs nor extensive hospitalization or innumerable and perhaps unnecessary tests will take the place of time expended in education. This is our problem as physicians. As an additional aid we have at our disposal such central acting agents as the barbiturates to help accomplish this purpose.

## ANTACID THERAPY

It is generally conceded that 85 per cent of all peptic ulcers will respond to acid-pepsin control, that is, medical treatment plus central and vagal therapy based on education, sedation and the use of the belladonna series. It is also known that approximately 60 per cent of ulcers will recur in persons so treated. These recurrences may represent failure on the part of the patient to adhere to the regimen or failure on the part of the physician to emphasize the value and the necessity of carrying on the treatment.

In conjunction with medical vagotomy direct control of acid pepsin factors is accomplished by the use of antacids and the bland diet. The multiple antacid preparations available to the profession indicate that we possess no product having all the desired virtues: ease of taking, nonliquid, nonconstipating and a high and prolonged antacid effect. Our choice remains calcium carbonate. Most important is the timing of the administration, and this bears restatement—0.6 Gm. one, two and three hours after each meal and the hour of slumber.

The bland diet is broad, generous, with frequent feedings of food substances, nonirritating, high in acid adsorbability and rich in fats which perhaps diminish acid gastric secretion through the elaboration of enterogastrone.

Medical vagotomy and antacid therapy will result in the control of 85 per cent of the peptic ulcers treated. Few diseases have medical therapeutic measures as effective as this combined treatment.

## PROPHYLAXIS OF PEPTIC ULCER

Of the 85 per cent of the peptic ulcers that respond to medical treatment recurrences can be expected in about 60 per cent. It is the control of these that represents one of the foremost advances in the treatment of peptic ulcer in recent years.

If the prophylactic principles of the prevention of peptic ulcer had been as completely utilized as those for the prevention of such an infectious disease as typhoid, in our opinion, there would be fewer recurrences. Unfortunately, we have no preventive inoculations, but do have specific advice and medical therapy, the value of which has been emphasized by Alvarez,[2] Winkelstein[3] and others.

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Read in a joint meeting of the Section on Surgery and the Section on Gastro-Enterology and Proctology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 25, 1948.

[1] Dragstedt, L. R.; Fournier, H. J.; Woodward, E. R.; Tovee, B., and Harper, P. V.: Transabdominal Gastric Vagotomy, Surg., Gynec. & Obst. **85**:461 (Oct.) 1947. Dragstedt, L. R.; Harper, P. V.; Tovee, E. B., and Woodward, E. R.: Section of the Vagus Nerves to the Stomach in the Treatment of Peptic Ulcer, Ann. Surg. **125**:687 (Nov.) 1947. Dragstedt, L. R.; Palmer, W. L.; Schafer, P. W., and Hodges, P. C.: Supra-Diaphragmatic Section of the Vagus Nerves in the Treatment of Duodenal and Gastric Ulcers, Gastroenterology, **3**:450 (Dec.) 1944.

[2] Alvarez, W. C.: How to Avoid Flare-Ups of Peptic Ulcer, J. A. M. A. **125**:903 (July 29) 1944.

[3] Winkelstein, A.: The Prophylaxis of Peptic Ulcer, Gastroenterology **5**:457 (Dec.) 1945.

In the person with a known peptic ulcer the following measures can definitely aid in the prevention of recurrences:

1. The person who anticipates exposure to emotional strain should be prepared for such an event by as thorough a grounding as possible in the importance of factors such as fear, anger and worry, by the active practitioner and not by the psychiatrist. There are not enough psychiatrists available at the present time to take care of the serious problems that belong to them, and the practitioner must assume his place in this disease.

2. Sedation. The use of adequate doses of the belladonna group and the barbiturate sedatives will definitely decrease or eliminate central vagal ulcerogenic stimuli. On the slightest indication of return of symptoms, the patient of his own accord should resume his restricted diet and medication.

3. We have found it helpful to exclude alcohol and to limit the use of coffee and tobacco.

4. The ulcer patient should "beware the Ides of March" and the autumnal equinox. Why, we do not know, but it is at these times that with the slightest indication of symptoms he should resume his planned therapy.

### ENTEROGASTRONE

Ivy and his co-workers[4] reported that the administration of an extract of duodenal mucosa rich in enterogastrone was remarkably effective in preventing the formation of postoperative jejunal ulcer in dogs prepared by the method of Mann-Williamson. Ivy[4] and Sandweiss[5] have designated enterogastrone as the hormone derived from either the duodenal or intestinal mucosa which suppresses gastric secretion and acidity and gastric motility, and which may also contain a factor which increases the resistance of the mucosa to ulceration. A further observation was that after the enterogastrone therapy was discontinued the ulcers failed to develop in the animals during a period of 8 to 14 months, and they surmised that in some manner the animals were immunized. Since this observation a preparation of enterogastrone has been made available to the profession and used in the treatment of peptic ulcer. There have been varying reports of success and failure following its administration.

In the past year we were generously supplied with an adequate amount of enterogastrone so that we were able to administer daily hypodermic injections of enterogastrone to a small group of 10 patients. These were all men, with an average age of 53 years. Six had chronic duodenal ulcers, 1 a gastric ulcer and 3 jejunal ulcers. The average duration of symptoms was 11 years; the longest period was 26 years and the shortest 3 years.

The patients received no other therapy of any type except for the bland diet. The duration of treatment with daily injections of enterogastrone was as follows: 6, 5, 7, 8, 8, 2, 11, 10, 7 and 8 months, respectively. The only untoward reaction noted was the development of subcutaneous nodules. All were followed clinically and roentgenologically. The patient treated for 2 months was one who showed improvement but discontinued treatment. Of the 6 patients with duodenal ulcer, 4 showed a poor clinical response, with the persistence of definite roentgenologic evidence of the presence of ulcer. Two showed definite freedom of symptoms, with healing demonstrated by roentgenogram.

The patient with a gastric ulcer, who refused operation, showed no clinical or roentgenologic improvement with enterogastrone therapy. Of the 3 patients who had jejunal ulcers 2 had excellent clinical results, with evidence of healing by roentgenogram. One showed a doubtful response, and at the end of 7 months antacid therapy was instituted, with subsequent improvement.

We think that this is a group of patients different from some of the others studied in that, despite their continued ulcer symptoms, they were willing to continue with the enterogastrone therapy and bland diet as the only form of treatment.

In a recent communication, Sandweiss[5] stated that his clinical results with enterogastrone in comparison with the diet-alkali regimen indicated that enterogastrone failed to produce more satisfactory results than the diet-educational-medicinal plan. In personal communications Palmer and Pollard both stated that in their opinion their results with enterogastrone were not better than those obtained with conventional medical treatment. From our results we were inclined to agree with this conclusion.

Ivy and Grossman[6] concluded that enterogastrone extracts prevent postoperative jejunal ulceration in a high percentage of Mann-Williamson dogs, and from their studies of human beings believe that the results are not unrelated and further exploration of the value of enterogastrone is warranted.

### RESECTION OF GASTRIC AND DUODENAL ULCERS IN GENERAL HOSPITALS

It is our feeling that surgical treatment for peptic ulcer is based on the same physiologic principles that apply in medical therapy, namely, the reduction of the acid pepsin factor to as near a point of permanent gastric anacidity as possible.

Surgical treatment for the intractable ulcer not amenable to adequate medical therapy is, in our opinion, best accomplished by high gastric resection including the first portion of the duodenum and 80 per cent of the stomach with a Polya type of restoration of continuity of the gastrointestinal tract. This procedure removes not only the acid-secreting portion of the stomach but also the hormonal area and permits neutralization of the gastric acidity by the alkaline jejunal contents. Mechanically it also prevents the pooling of food and gastric juices, which we feel is of great importance.

During the years 1940 to 1946,[7] 153 high gastric resections for peptic ulcer performed by nine different surgeons at the Buffalo General Hospital were available for follow-up studies. These patients were recalled and rechecked during the year 1947. Eighty per cent of these patients had no free acid; 13 per cent had free acid values below 13 units, and 7 per cent had high acid values. Of these patients 76 per cent considered themselves well, while 14 per cent of them considered themselves very much improved. The remaining 10 per cent were not improved and had marginal ulcers.

When one considers that these 153 patients were gastric cripples who had failed to respond to excellent medical treatment, 90 per cent is a high salvage mark for any other type of surgical procedure to better. In other words, of every 100 patients in whom adequate medical therapy has failed, high gastric resection has restored 90 per cent to a sound and useful economic existence.

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[4] Ivy, A. C.: A Potential Physiological Contribution to the Prevention of "Peptic Ulcer" in Man, Federation Proc. 4: 222 (Sept.) 1945; The Prevention of "Peptic Ulcer"; An Experimental Study, Gastroenterology 3: 433 (Dec.) 1944. Greengard, H.; Atkinson, A. J.; Grossman, M. D., and Ivy, A. C.: The Effectiveness of Parenterally Administered "Enterogastrone" in the Prophylaxis of Recurrences of Experimental and Peptic Ulcer, Gastroenterology 7: 625 (Dec.) 1946.

[5] Sandweiss, D. J.: Personal communication to the author.

[6] Ivy, A. C., and Grossman, M. I.: The Present Status of "Enterogastrone" in the Therapy of Peptic Ulcer, in Johnson, T. A.: Management of Common Gastro-Intestinal Diseases, Philadelphia, J. B. Lippincott Company, 1948, p. 67.

[7] Howland, J. M.: Proc. Staff Meet., Buffalo General Hospital.

In this group the only unfavorable postoperative sequela has been a failure to gain weight. We have not been impressed with the so-termed dumping syndrome as reported by other observers. A review of the mortality rates following this radical procedure at the Buffalo General Hospital corresponds to the experience of surgeons elsewhere. It must be remembered that we are reporting the results from a large general hospital where a number of surgeons were operating. During the years 1940-1944, the mortality rate was 14 per cent; in 1945 it was 9 per cent and in 1946 down to 5 per cent.

In the last 40 consecutive cases at the Buffalo General Hospital, with nine different surgeons operating for intractable peptic ulcers, there was 1 death. At the other teaching hospital associated with the University of Buffalo, The Meyer Memorial Hospital, in the last 80 consecutive cases there was no death. In other words, in 120 consecutive cases in which operation was done in two large general hospitals there has been 1 death, representing a mortality rate of less than 1 per cent.

### GASTRIC ULCER

It is our feeling that the patient with gastric ulcer who does not exhibit freedom of symptoms and roentgenologic evidence of complete healing within four weeks should be operated on. We do not temporize with gastric ulcer. We know that there is a 15 per cent error, in our hands and in the hands of others, in gross pathologic diagnosis as to benignancy or malignancy. If there is to be any reduction in the appalling high mortality rate of gastric carcinoma, the gastric ulcer must be operated on early.

In a recent communication, Welch and Allen[8] and Marshall and Welch[9] advised a more immediate attack on gastric ulcer, omitting any effort to prove that it would heal under medical care, restricting this medical procedure to young patients in whom the ulcer is small and on the lesser curvature or on the posterior wall. Welch and Allen[8] called attention to the fact that the incidence of delay in seeking treatment for carcinoma of the stomach has not changed since 1927. In other words, the patient has not sought care and the profession has not utilized well proved criteria for indication of early resection.

### MASSIVE HEMORRHAGE

For years the attitude toward the treatment of massive hemorrhage has fluctuated between the extremes of medical and surgical management. This cyclic behavior indicates continuing dissatisfaction with prevailing mortality figures. Each form of treatment has its enthusiastic proponents. The principal cause of this recurring difference of opinion is the acknowledged difficulty in establishing criteria that will enable one to select those patients who would not respond to medical management. The interpretation of the term massive hemorrhage varies from group to group. To us it means massive continuing bleeding with an exhibition of the classic picture of collapse: pallor, air hunger, hypotension and tachycardia with decreased blood volume. In the majority of instances this precarious state will respond to medical treatment consisting of massive and continuous multiple *transfusions, oxygen and opiates.* There will be some who will not survive, and some whom surgical treatment will save. Yet it seems to us that at the present time the surgical mortality rate is too high, even in competent hands, to justify the general use of gastric resection as the treatment of choice in massive hemorrhage.

Others (more recently Stewart[10]) have stated that operative intervention requires a team of from six to eight highly trained personnel, meticulous preoperative preparation, including laboratory studies, a skilled surgeon, resident and nursing staff and adequate blood, since in the majority of instances this intensely coordinated activity will take place during the night when bleeding so frequently occurs. Moreover, it is not generally appreciated that successful surgical intervention requires considerable surgical treatment, such as the removal of the ulcer (the point of bleeding) as part of the gastric resection, and this can often be technically *difficult and sometimes impossible.* In these instances, in addition to the resection one must be sure that the pancreaticoduodenal artery is ligated. It is obvious that such a service is not generally available. Consequently, it is our feeling that in the present state of our knowledge and skill we must advocate the conservative medical treatment of massive hemorrhage.

It is to be hoped that future studies will demonstrate a reduction in surgical mortality rates, so that operation may be more widely used as a relatively safe method to attack the bleeding at its source. None will deny that local control with mechanical measures is the most efficient means of arresting hemorrhage in whatever portion of the body it may occur. It becomes apparent, therefore, that sound criteria must be developed to allow selection of those patients to be operated on.

We reemphasize that we are discussing patients suffering from massive continuing bleeding with the classic picture of collapse. These patients should immediately have *multiple transfusions* in addition to the conventional conservative therapy, as much as 2,000 cc. of blood in an hour if necessary. At the end of 3 hours of this treatment, if there is no appreciable clinical improvement in the patient, as indicated by a rise in blood pressure, reduction in pulse rate and disappearance of air hunger, we suggest that the patient is a candidate for immediate operation, as it appears that he is losing blood as rapidly as it is replaced. If this persists for a few more hours this shock state will become irreversible, so that even operation will not save the patient. However, if at the end of 3 hours clinical improvement is manifested, we continue the same treatment, and at the end of 6 hours we discontinue all therapy and carefully observe the patient. If he once again starts to bleed massively, the same treatment is given and the patient operated on at once. If, however, the patient does not show evidence of massive bleeding after discontinuance of all therapy, the medical plan of therapy is continued. Under this regimen as much as 5 liters (5,000 cc.) of blood may be administered in the six hour period.

If the concept of surgical treatment is strengthened by future studies, then, taking a lesson from World War II, it might be desirable to give transfusions while transporting patients with hemorrhage from smaller communities to centers with the facilities described herein.

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[8] Welch, C. E., and Allen, A. W.: Carcinoma of the Stomach, New England J. Med. **238:** 583 (April 22) 1948.

[9] Marshall, S. F., and Welch, M. L.: Results of Surgical Treatment for Gastric Ulcer, J. A. M. A. **136:** 748 (March 13) 1948.

[10] Stewart, J. R.: Personal communication to the author; Scientific *Exhibition of the American Medical Association, Section of Surgery,* June 1948.

However, until this hope is translated into fact we must continue to urge conservative medical management as a general procedure in the management of massive continuing hemorrhage. At the present time we feel that the first step is to have in each large hospital teams to carry out the medical treatment we have presented; we look forward to the further contributions from Stewart and his co-workers and others to establish more firmly the idea of immediate surgical intervention. In 32 of their patients operated on, the mortality rate was 16 per cent. In 21 patients not operated on, the mortality rate was 29 per cent.

### SURGICAL VAGOTOMY

With the advent of increased supradiaphragmatic and subdiagphragmatic surgical vagotomy, the gastroenterologist, as well as the surgeon, realized the necessity of arriving at a conclusion as quickly as possible as to the merits and disadvantages of this operative procedure. The American Gastroenterological Association, with this idea in mind, appointed a committee on ulcer with Dr. David Sandweiss as general chairman and Dr. Sara M. Jordan as chairman of the subcommittee on vagotomy to accumulate the data as to the status and progress of surgical vagotomy up to the present time.

At its recent meeting in Atlantic City, a panel, consisting of Dr. Harry L. Bockus, moderator, and Drs. Francis D. Moore, Allen Wilkinson, Lester R. Dragstedt, Julian M. Ruffin, Franklin Hollander, Jay Earl Thomas, Thomas E. Machella and E. N. Collins, discussed the problem by direct presentation and question period, fixing their attention on the surgical procedure of vagotomy.

From these sources we quote by consultation of their stenographic notes:

> The opinion that transthoracic or transabdominal vagotomy as usually performed is seldom complete is concurred in by all modern physiologists and is based on sound anatomic considerations: (1) Small esophageal plexuses may escape the operator's notice, and (2) the gastrointestinal vagal nerve ends in a ganglionic plexus within the walls of the stomach.
>
> Vagus fibers may enter the musculature of the esophagus and emerge again at lower levels. In animals, at least, severance of all vagal fibers gives rather uniform results—unfavorable, even death.
>
> Complete vagotomy in experimental animals regularly causes digestive disturbances severe enough to cause death. These comprise hypomotility of the stomach and hyposecretion of the stomach and pancreas and possibly the intestines, together with a vigorous hyperirritability of the intestines.
>
> These changes are interpreted as being due mainly to loss of the tonic activity of the abdominal vagus. Evidence is reviewed which indicates that transthoracic or transabdominal vagotomy in experimental animals, and presumably in human beings, is seldom complete, and it is suggested that the relative harmlessness of this operation as usually performed is due to this fact.
>
> Attempts to accomplish more nearly complete vagotomy in human subjects would probably be unwise.
>
> Tonic activity of the vagus may be essential for the production of gastrin.

The general conclusions from the stenographic notes are:

1. In 2,500 cases reported the mortality rate was 1.7 per cent.
2. Eighty-five to 90 per cent have relief of pain.
3. The recurrent hemorrhage rate was 1 per cent.
4. There is an over-all recurrence of some form of symptoms in 15 to 20 per cent.
5. Atony has been a temporary factor.
6. Ninety-three per cent who had had a resection were wholly satisfied.[11]

Dr. Moore called attention to the dangers of the use of statistics. He called to mind the fact that it was the desire to secure the facts of such committee investigations but to avoid standardization and too all-inclusive conclusions.

Dr. Ruffin stated that the failures or recurrences reached as high as 20 per cent and emphasized the necessity of carefully choosing the patient on whom a vagotomy is to be performed. The patient who had a marginal ulcer following resection was a most likely candidate for vagotomy, and in repeated massive hemorrhage he believed that the same would hold true and that the debilitated patient will withstand vagotomy rather than resection.

Dragstedt stated that the pain relief by vagotomy is due to the profound reduction of the free hydrochloric acid concentration of the gastric contents and, in addition, relaxation of the tonus and motility of the stomach. He was sure that it is not due to sensory block. Dr. Dragstedt was convinced that it is possible to do a physiologically complete vagotomy in a human being when the nerves are divided along the lower part of the esophagus; he called attention to the fact that the surgeon who does the prevailing type of subtotal gastric resection also sections the vagus nerves. It was agreed that the severed nerves do not regenerate and do not reunite.

At the present time it is our feeling that gastric resection is the surgical procedure of choice in the majority of patients who prove resistant to conventional medical therapy, on the basis, as we stated earlier, that high gastric resection produces greater opportunity for an antacid stomach, in our hands, over a longer period of time.

Vagotomy has certain merits and definite disadvantages. For several years to come it must be considered as an experiment in human gastric function. Certainly, vagotomy reduces acid secretion, at least temporarily. In addition it may remove a mysterious factor X, central in origin, mediated over the vagal pathway and perhaps related to the tissue resistance of the mucous membrane of the upper part of the gastrointestinal tract. Most spectacularly, it relieves ulcer pain almost immediately. Probably a complete vagotomy is impossible anatomically, because of fibers which course within the esophageal walls. This may not be a disadvantage, because in the experimental animal complete section of the vagus nerve leads to disastrous consequences, if not death. In the majority of instances there is satisfactory control of ulcer symptoms for a temporary period of time.

Despite these advantages there are important disadvantages. Most significant is its temporary effect. It is known that over a period of months or several years there is a restoration of acid to normal amounts, and this implies a return of the ulcer environment. Secondly, there has already been demonstrated a rather high percentage of recurrences, even with bleeding. Finally, undesirable side effects may occur, such as gastric retention and diarrhea, which may be temporary or susceptible of medical control but some of which will necessitate additional surgical treatment.

If the procedure is to be done, it seems more reasonable to employ it in conjunction with some sort of drainage operation, such as gastroenterostomy. However, the value of this combined procedure over gastric resection remains to be proved. This is not to say that there is not a place for vagotomy in the management of intractable ulcer. It has special value in the treatment of marginal ulcers, where it seems to be the first procedure that should be tried because of the technical difficulties so often inherent in direct surgical attack against these lesions.

## ABSTRACT OF DISCUSSION

ON PAPERS BY DRS. AARON, LIPP AND MILCH, AND DRS. GRIMSON, RUNDLES, BAYLIN, TAYLOR AND LINBERG

Dr. Lester R. Dragstedt, Chicago: The early surgeons who worked in this field seldom, if ever, secured a complete division of the vagus fibers to the stomach. I am certain, however, that the method is receiving an adequate test at the present time. Some 9,000 vagotomies have been done in the United States, and possibly 2,000 have been done in various European countries. At the University of Chicago Clinics, our experience with vagotomy for peptic ulcer falls into three periods. During the first period, which extended from January 1943 to the middle of 1945, I performed a transthoracic vagotomy on 80 patients with various types of peptic ulcer. The method was then abandoned because of the intercostal pain so frequently associated with the thoracotomy, and also because of inability to explore the stomach and other abdominal viscera. From June 1945 to about July 1946, we performed a routine gastric vagotomy and gastroenterostomy on all patients with duodenal ulcer. The results following this method of treatment were highly satisfactory. However, when I reflected on the fact that in the first series, there was a large number of patients on whom vagotomy alone had given an excellent result, it occurred to me that an unnecessary gastroenterostomy was being done in many cases. Since July 1946 gastric vagotomy alone has been performed on about 80 per cent of patients with duodenal ulcer. In the remaining 20 per cent, an additional gastroenterostomy has been carried out because of actual or threatened pyloric stenosis. Up to December 1947 a total of 370 patients with various types of peptic ulcer had been treated by vagotomy at the University of Chicago Clinics. In 202 of these, vagotomy alone was performed. In this latter series, there was 1 death. One hundred and sixty-eight patients had vagotomy plus gastroenterostomy or some other type of gastric surgical treatment. In this group, there were 3 deaths. In the total series, there were 326 duodenal ulcers, 30 jejunal ulcers and 14 gastric ulcers. In the entire series, vagotomy was proved to be complete by physiologic tests in 340 of the patients. In only 2 of these was there a recurrence or persistence of ulcer. In 1 patient with a duodenal ulcer which remained healed for four and one-half years, a benign gastric ulcer developed in an almost anacid stomach. The gastric content after a test meal was neutral, but free acid was secreted in response to the stimulus of histamine. The second patient with recurrence following complete vagotomy had an associated pyloric stenosis. Because of this, vagotomy and gastroenterostomy were carried out. Because of subsequent obstruction at the gastroenterostomy site, a second operation was performed with an entero-enteroanastomosis between the jejunal loops. This procedure was ill advised, because it diverted the alkaline bile and pancreatic juice away from the anastomosis, and an ulcer subsequently developed at the stoma.

Dr. Francis D. Moore, Boston: My co-workers and I have used vagotomy chiefly without other procedure. In the recent past we have performed more of the drainage operations. It may well be, as Dr. Grimson has pointed out, that the patients who have vagotomy with partial gastroenterostomy will feel better and get along more satisfactorily. We should not assign that entirely to the drainage function of the gastroenterostomy but should remember that the operation or gastroenterostomy alone is effective in dealing with a reasonably high percentage of patients with duodenal ulcer. The long term result in this group will be determined by the number in whom jejunal ulcers later develop at the new anastomosis. In our series of 116 patients subjected to vagotomy, we have had 11 per cent recurrence, the term to include the appearance of either symptoms revealed by milk and alkali or symptoms plus demonstrable ulcers. These late recurrences have come after long postoperative periods—one, two or three years—with negative reactions to insulin tests in the interval, and they cannot be ascribed to incomplete vagotomy. They are a manifestation of the fact that the autonomic nervous system was not contrived by nature to be operated on and removed. It serves primitive functions, and some years after removal physiologic resumption of function occurs. Whether this is due to "overlap" or anatomic regeneration, I do not know. We have had several patients whose symptoms were minor, transient or negligible, but who have either enough symptoms to suggest trouble, a roentgen change pointing the way to recurrence or a resumption of insulin reactivity. It is my feeling that in spite of the fact that 11,000 vagotomies have been allegedly done the world over, it is still too soon to feel confident with this procedure. I am going to follow our series of about 100 patients very closely, seeing them frequently, taking roentgenograms frequently and making physiologic studies frequently before I apply this procedure widely—or wisely—to many patients.

Dr. A. C. Ivy, Chicago: We are fortunate to have men performing this operation who have a basic training in physiology and are applying physiologic methods in an attempt to evaluate carefully the results of the operation. This should render it possible to evaluate this operation much sooner than, for example, gastroenterostomy or resection of the pyloric portion of the stomach was evaluated. The vagus exercises several influences on the alimentary tract: a motor, a secretory and probably a vasomotor influence. It also mediates afferent sensations from the alimentary tract. The predominant action of the vagus on the cardiac sphincter is to promote relaxation in advance of a wave of primary peristalsis. When the vagus is sectioned, achalasia of the cardiac sphincter tends to occur. It persists in the dog from two weeks to a year. The same observations have been reported in human beings. The vagus manifests a tonic effect on the postural tone of the stomach. Section of the gastric vagi causes a loss of postural tone, or resistance to stretch; that is, the stomach is more readily distended with air than it was before operation (*Arch. Int. Med.* **25**: 6 [Jan.] 1920). This disturbance of postural tone in the dog lasts from two weeks to six weeks. The vagus has an effect on the peristaltic tone of the stomach. In 1920 I reported that section of the vagi above the diaphragm in the dog results in the abolition of type 2 and 3 hunger contractions in the stomach; these are contractions on tone. In other words, according to my observations vagi section abolishes the tonic type of motility for a period of at least two years. Of course, peristaltic activity occurs, but it occurs only on low tone. In my opinion, that is the reason why ulcer pain occurs so infrequently after section of the vagi. The predominant effect of the vagi on the pyloric sphincter is inhibitory, according to my observations. The effect on the sphincter of Oddi, according to my observations, is primarily motor. I am not certain what the effect of the vagus is on the small intestine. It has been difficult for me to demonstrate in the dog any effect of the vagus on the small intestine. The vagus is predominantly inhibitory for the ileocecal sphincter. I have not seen any result from stimulation of the vagus below the heart on the colon of the pig, monkey or dog. I do not have a good explanation to offer for the diarrhea observed in some patients after vagotomy. Regarding the secretory action of the vagi, everyone is agreed that complete supradiaphragmatic section of the vagi abolishes the cephalic phase of gastric secretion. In addition, my observations in human beings indicate that section of the vagi decreases the responsiveness of the human stomach to histamine. I have not been able to demonstrate that the vagus has any effect on the secretion of mucus. The other point is that reflex cardiac and respiratory arrest may occur during the performance of a transthoracic vagotomy. I have performed approximately 250 such operations and have observed cardiac arrest in approximately 1 out of 25 dogs. The heart can be resuscitated uniformly by cardiac massage and the intracardiac injection of 1 mg. of epinephrine hydrochloride and 0.6 mg. of atropine sulfate.

**Dr. Waltman Walters**, Rochester, Minn.: Vagotomy has been performed at the Mayo Clinic 177 times, 77 times by me and 100 times by other surgeons. The operation is clearly indicated in cases of recurring ulceration after partial gastrectomy. Excellent results have been obtained in a two year period when vagotomy was performed for gastrojejunal ulcer which had followed gastroenterostomy. These results compare favorably with the results of partial gastrectomy in similar cases of gastrojejunal ulceration, when the patients are studied after a lapse of from five to ten years or more. The results in the treatment of duodenal ulcer when vagotomy is combined with gastroenterostomy seem little better than when gastroenterostomy is performed alone. The same may apply to cases in which pyloroplasty with removal of the duodenal ulcer is accompanied with vagotomy. It has seemed to us best to interpret the results of vagotomy in the treatment of duodenal ulcer, therefore, in that group in which the vagotomy was performed without other operations on the stomach, which would tend to promote gastric emptying, decrease the amount of gastric secretion and reduce the acidity of the stomach by the reflux of alkaline, duodenal and biliary secretions through the gastroenteric stoma or by removal of part of the secreting portion of the stomach, as in partial gastrectomy. Excellent results in the treatment of duodenal ulcer were obtained in only 65 per cent of cases from vagotomy alone and unsatisfactory results in 35 per cent; from vagotomy combined with gastroenterostomy excellent results were obtained in 88 per cent and unsatisfactory in 12 per cent. From vagotomy combined with excision of the ulcer and pyloroplasty, excellent results were obtained in 80 per cent and unsatisfactory in 20 per cent. In the treatment of gastrojejunal ulcer which followed gastroenterostomy, the results from vagotomy alone were excellent in 83 per cent and unsatisfactory in 17 per cent. When the ulcer followed gastric resection, the results of vagotomy alone were excellent in 88 per cent and unsatisfactory in 12 per cent. Vagotomy alone thus gave excellent results in 86 per cent of cases of gastrojejunal ulcers in which it was employed. Excision of the ulcer and reconstruction of the gastrojejunal anastomosis combined with vagotomy were carried out in 6 cases and gave excellent results in 3. The poorest results in the whole series were obtained in this small group of cases.

**Dr. Walter L. Palmer**, Chicago: I shall limit my remarks to duodenal ulcer. It is important to remember that duodenal ulcer is a benign disease, that the great majority of patients get along very well with the standard methods of medical management such as Dr. Aaron outlined. As Dr. Jordan has pointed out, the indication for operation is intractability; we all have different ideas as to what constitutes intractability. In my judgment, the incidence of intractability does not exceed 10 per cent. What is the cause of intractability? It seems to me to be due to high grade gastric secretion. Dr. Levin has shown in his study of fasting gastric secretion that the average normal person in twelve hours will secrete 661 mg. of hydrochloric acid, whereas the average patient with duodenal ulcer secretes 2,242 mg. of acid, or three and a half times as much. In 5 so-called intractable patients whose secretion was studied by Dr. Levin the nightly twelve hour output of acid was 3,900 mg., 3,800, 2,900, 3,900 and 5,500 mg., respectively. If there were some means of regularly producing complete and permanent gastric anacidity, the ulcer problem would be solved. I do not know of such a method. There is no procedure, either medical or surgical, short of total gastrectomy, which regularly or invariably produces permanent anacidity and permanent cure. Dr. Dragstedt has shown that one of the best methods of lowering gastric secretion is vagotomy. He and Dr. Moore have pointed out, however, that there are occasional patients in whom vagotomy does not reduce the acid, presumably because the procedure is incomplete. Subtotal gastrectomy brings about anacidity, as Dr. Aaron pointed out, in perhaps 80 per cent of cases, but not more than that. In the surgical treatment in the intractable cases, one must choose between subtotal or total gastrectomy and vagotomy with or without gastroenterostomy. For the reasons Dr. Aaron indicated, I have never approved of subtotal gastrectomy for duodenal ulcer.

**Dr. Sara M. Jordan**, Boston: There are two comments I should like to make. One is a request, and the other is a protest. First the protest, and that is against vagotomy for gastric ulcer. My co-workers and I have been interested for about twenty-five years, have been able to follow a great number of gastric ulcers and have recently studied them. We are impressed, first of all, with the necessity for absolute and complete healing of the gastric ulcer. Secondly, we are impressed with the necessity for the maintenance of healing. In other words, we regard the unhealed ulcer and the recurrent ulcer as dangerous, as potentially malignant. About 20 per cent of all gastric cancer arises in what looks like a benign gastric ulcer. Ten per cent of ulcers in our series actually proved to be malignant. Therefore, if we trust vagotomy to heal the ulcer, without making a most accurate careful check-up, I think that we then run a great risk of that small percentage of ulcers becoming malignant without our knowledge. I believe that resection is the operation for gastric ulcer if it needs any operation. Secondly, the request—and this is a very earnest request—that all surgeons do as Dr. Francis Moore said he was doing, follow up vagotomy cases. The National Committee for the Study of Peptic Ulcer of the American Gastro-Enterological Association will call on you during the next year for those results. We hope by careful appraisal of them to come to an opinion within a year which will promote or cause us to discontinue this operation of vagotomy.

**Dr. R. L. Sanders**, Memphis, Tenn.: My co-workers and I have done vagal resection in 122 cases of duodenal ulcer and gastrojejunal ulcer. For gastric ulcer, we have continued performing a resection, usually supplementing it with vagotomy. All of these operations have been performed through an abdominal incision. Being abdominal surgeons, we naturally prefer this approach; moreover, we feel that it is definitely advantageous in that the pathologic process may thus be visualized. In addition, the patient's convalescence is more comfortable and complications are fewer than those following the use of the transthoracic approach. In more than 85 per cent of the 122 cases, we have combined a gastroenterostomy with vagal resection. The majority of the remaining vagotomies were performed early in our experience with the procedure. We soon found that without a gastroenterostomy patients had considerable difficulty with fulness and distress following operation, whereas with the addition of a gastroenterostomy they had little trouble in this respect, and then usually for only a short while, until the tonus of the stomach was restored. Two patients had a gastroenterostomy subsequent to vagal resection, because of persistent discomfort. Several had a mild or moderate diarrhea postoperatively, though, with one or two exceptions, this sooner or later subsided. We have been well pleased with the results of bilateral vagal resection. Approximately 85 per cent of our 122 patients have obtained excellent results, with complete relief of their ulcer symptoms. Approximately 10 per cent have had a fair result, continuing to experience mild or moderate epigastric discomfort or recurrent episodes of diarrhea. All of this group feel that the operation has been well worth while. The unfavorable outcome in the remainder may be attributed either to the fact that the resection was inadequate or the patient had a definite neurosis. We have observed that the best results followed combined vagal resection and gastroenterostomy in young persons with an active ulcer and, preferably, though not necessarily, high gastric acid levels. We have had no operative deaths, nor have any of our patients exhibited evidence of recurrent ulcer.

**Dr. Otto Porges**, Chicago: As Dr. Palmer pointed out, the problem of the treatment of ulcers is in lowering of the secretion of the stomach. We know that certain drugs lower secretion: 1. Atropine and its derivatives are effective, but they do not work satisfactorily in nontoxic doses. 2. There are the antihistaminic drugs. They, too, work but in large doses which produce major side effects. 3. Sodium nitrate depresses stomach secretion in large doses only, causing untoward reactions. I conceived the idea of using all these drugs combined, and I examined the reaction in animals. I found that these three drugs, combined in low doses, lower the gastric acidity satisfactorily. I gave two or all three of these drugs combined to patients with ulcer, and I saw that the pains were gone from the outset of this therapy and there were no untoward side effects. Plenty of work has still to be done in this direction. I cannot report yet about the future of these cases, but work is in progress in this direction. I mention my research only because I think that it might be of use to one or the other of you.

Dr. R. S. Dinsmore, Cleveland: I was extremely impressed with Dr. Aaron's discussion about the important group of patients who have massive recurrent hemorrhages and who in some instances have to be operated on as emergencies. Interestingly enough, he has stated that in this group 1 out of 4 or 1 out of 6 of these patients treated medically or surgically are lost. Many of these patients bleed from deep posterior wall lesions, and efforts at controlling the bleeding locally have resulted in failure, so that gastric resections must be resorted to. It is an advantage immediately to divide the stomach, thus allowing an adequate and quick exposure of the posterior area. In some of these patients, especially those who continue to bleed during the operation, arterial transfusions may be of advantage. There is one complication of vagotomy that is seldom mentioned, which is a technical one—that of injury to the splenic pedicle. My own efforts in attempting a plastic procedure on them have been eminently unsuccessful; in nearly every instance an immediate splenectomy is indicated.

Dr. Erwin Levin, Chicago: During the past several years, Dr. Palmer, Dr. Kirsner and I have studied the nocturnal gastric secretion in normal persons and in patients with duodenal ulcer and with gastric ulcer. The average output of hydrochloric acid during the night for normal persons averaged 661 mg. It was below 500 mg. in 50 per cent. In patients with duodenal ulcer the average output of acid was 2,242 mg. It was below 500 in 1 per cent of the studies. The amount was greater than 1,000 mg. in 80 per cent and greater than 2,000 mg. in more than 50 per cent. In patients with gastric ulcer the average output of acid during the night was 454 mg., approximately two thirds that of normal persons. The amount was less than 500 in two thirds of the studies. These data were submitted to statistical analysis, and the conclusions are as follows: The output of acid is significantly greater in persons with duodenal ulcer than in normal persons and in patients with gastric ulcer is significantly less than in normal persons. What bearing does this have on vagotomy for peptic ulcer? When Dr. Dragstedt adopted this procedure, it was based on the physiologic principle that patients with ulcer have a hypersecretion of acid, presumably due to increased vagal activity. The data just presented for patients with duodenal ulcer and also the decrease of acid to normal or subnormal levels after vagotomy support this contention. Therefore, I agree that in patients with duodenal ulcer in whom operation is indicated the procedure of choice is bilateral vagotomy, with or without gastroenterostomy as may be indicated. However, in patients with gastric ulcer a different situation exists. The aforementioned data indicate that increased vagal activity is not present in this group. The output of acid in the majority of patients is less than that found in healthy normal persons. Furthermore, to my knowledge no evidence has been presented to date that the gastric secretion is decreased significantly in patients with gastric ulcer who are low secretors when bilateral vagotomy is performed. The question, therefore, arises: "Is vagotomy indicated in patients with benign gastric ulcer?"

Dr. A. H. Aaron: Since in 40 per cent of experimental dogs ulceration along the lesser curvature has followed vagotomy, I do not know why one should not expect to find it in human beings. I rather think that it is for those who propose vagotomy to do as Dr. Moore suggested: sincerely consider and evaluate the results in the approximately 11,000 vagectomized patients. This will be accomplished, as Dr. Jordan reported, when we have the results from the national committee which has been appointed by the American Gastroenterological Association to bring together much of this information. One should think seriously before one chooses to do too many of them. Others have called attention to the infrequency of hemorrhage following vagotomy. Nevertheless, Dr. Ruffin found about 1 per cent recurrence of hemorrhage in the group from Dr. Grimson's clinic. A mortality rate of 1 per cent shows results in this group to be similar to results in the group with gastric resection. One must bear in mind, as Dr. Palmer said, that only about 15 per cent of the patients are considered for surgical procedures. We must emphasize that we are not going to treat gastric ulcer by vagotomy. We must assume the responsibility that such a lesion may be malignant unless it is definitely demonstrated that it has healed clinically, roentgenologically and gastroscopically and shows absolutely no tendency to recur. The medical treatment is based on the sound principles which produce excellent results and if adequately followed up will prevent recurrence. I do not want to dodge the surgical issue. For those patients that I see who require surgical intervention, I use gastric resection, because there has been the lowest mortality rate with this technic and the environment for ulcer formation is reduced to a greater extent than with any other surgical method.

Dr. Keith S. Grimson, Durham, N. C.: Dr. Dragstedt's recommendation that the abdominal rather than the transthoracic approach be used generally for vagotomy is warranted by our results. Gastric retention necessitating secondary gastroenterostomy and caused by scar tissue also occasionally occurred among our patients treated by vagotomy alone, but with one exception the obstruction was a result of failure of relaxation of the pyloric sphincter and was not caused by scar tissue. We cannot agree entirely that the insulin test always determines completeness of vagotomy. This and also volume and acidity of gastric night secretions may vary after vagotomy, depending on stimuli other than those of nervous origin. Gastric motility pattern as recorded, with a 300 cc. intragastric balloon, seemed to us the least variable and probably most reliable test for completeness of interruption of the vagus nerves. Dr. Moore's careful study of vagotomy without gastroenterostomy has led to a conclusion in agreement with ours that vagotomy alone should not be used as a general treatment for duodenal ulcer. It is of interest that his observation of return of highly acid gastric secretions during insulin hypoglycemia in a few patients two or more years after operation agrees with observations reported by us; however, in our series a majority of the patients followed two to four years have had little or no acid even during five hour insulin tests. Dr. Ivy's experiences with vagotomy have been in accord with our observations on human beings and on animals. Achalasia has been described after this operation in animals. We have previously reported that temporary obstruction of the lower part of the esophagus occasionally followed vagotomy in human beings. This never persisted, did not roentgenologically resemble achalasia and was apparently related to spasm or edema following trauma of operation rather than to failure of peristalsis. We agree with Dr. Ivy that secretion of acid after administration of histamine, caffeine or insulin is frequently reduced after vagotomy in patients. We must emphasize, however, that patients and dogs differ with regard to effects on gastric motility and that, although gastric ulcers often develop in dogs, a gastric ulcer developed in only 1 patient in our series, and this healed within two months. We agree with Dr. Walters that a five or ten year period of observation will be necessary before proper evaluation of vagotomy as a treatment for peptic ulcer is possible. We agree that gastroenterostomy alone is only rarely indicated as the sole treatment for peptic ulcer. This reservation evidently does not apply to combined use of subdiaphragmatic vagotomy and gastroenterostomy, which apparently has been a satisfactory treatment as employed in our patients and during the present follow-up period.

# TENTATIVE APPRAISAL OF VITAMIN $B_{12}$ AS A THERAPEUTIC AGENT

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In the antiquity of many races there is evidence that liver was used to relieve illness. The modern epoch of its therapeutic use was opened when Minot and Murphy discovered that the eating of liver could be effective in producing remissions in persons with pernicious anemia in relapse.[1] Many of the patients soon complained about the amount of liver it was necessary to ingest, however, and the efforts of many investigators were directed toward producing potent liver extracts. These extracts have been studied and used extensively in clinical medicine; yet the pathogenesis of macrocytic anemia has remained far from clear.

Two advances were reported recently from our clinic. The first of these was the observation that pteroylglutamic acid (folic acid) produced a hemopoietic response in persons with certain types of macrocytic anemia in relapse.[2] The second observation was that 5-methyl uracil (thymine), an entirely different chemical compound, was capable of producing a similar response in persons with these diseases.[3] Despite the fact that these compounds had a profound effect in promoting blood regeneration, neither of them proved to be a complete treatment for pernicious anemia. Neither of them protected the nervous system in all patients against degeneration nor, when the degeneration had occurred, could it be remitted by either or both of these compounds.[4] Certain persons also experienced severe glossitis against which these compounds were not effective. Both of these compounds have been effective in treating tropical sprue and nutritional macrocytic anemia.[5] The amount of thymine which must be given to be effective is several thousand times the amount of folic acid required; thus, thymine is not a practical therapeutic substance.

The finding of the effect of specific therapeutic agents of known chemical composition on the cells of the bone marrow has opened a fresh and fertile field for the clinical investigator. While we have been studying the effects of thymine and folic acid and trying to redefine the macrocytic anemias in the light of all the various loose threads which enter the meshwork of their pathogenesis, we have steadily observed that a large amount of these substances was necessary to produce a satisfactory hemopoietic response. When we considered that relatively little highly potent liver extract is needed, we were led naturally to think that other substances are contained in liver extract.

The most recently discovered antianemic substance is vitamin $B_{12}$, a chemical compound of unknown chemical structure. Using the microbiologic method of Shorb,[6] Rickes, Brink, Koniuszy, Wood and Folkers isolated vitamin $B_{12}$ from liver.[7] It was found to be effective in 3 cases of pernicious anemia by West,[8] in 2 cases of pernicious anemia, 2 cases of nutritional macrocytic anemia and 1 case of nontropical sprue by Spies, Stone and Aramburu,[9] and in 2 cases of tropical sprue by Spies, Garcia Lopez, Milanes, Lopez Toca and Culver.[10] The present communication is concerned with the accumulation of data directed toward answering two questions: (1) What is the effect of vitamin $B_{12}$ on blood regeneration in persons with nutritional macrocytic anemia, tropical sprue and pernicious anemia? (2) What is the effect of vitamin $B_{12}$ on subacute combined degeneration in persons with pernicious anemia? These studies were done in the Nutrition Clinic of the Hillman Hospital, Birmingham, Ala., the General Calixto Garcia Hospital, Habana, Cuba, and the School of Tropical Medicine, San Juan, Puerto Rico.

## MATERIAL AND METHODS

Of utmost importance in the selection of patients for testing vitamin $B_{12}$ was an accurate diagnosis. Before admitting the patients to the hospital to serve as test subjects for the purpose of studying the effectiveness of vitamin $B_{12}$ as an antianemic substance, we determined that each one fulfilled the following four criteria:

1. Macrocytic hyperchromic anemia
2. Red blood cell count of 2,500,000 or less
3. Color index of 1.0 or more
4. Megaloblastic arrest of the sternal bone marrow

Additional criteria used in classifying the cases as to the type of macrocytic anemia were: for pernicious anemia, the absence of free hydrochloric acid in the gastric contents after histamine stimulation; for nutritional macrocytic anemia, the presence of free hydrochloric acid in the gastric contents and diarrhea characterized by dark brown stools; for tropical sprue, the presence of free hydrochloric acid in the gastric contents, a flat glucose tolerance curve, diarrhea with

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Dr. Aramburu and Dr. Kartus are Williams-Waterman Fellows in Nutrition.

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From the Department of Nutrition and Metabolism, Northwestern University, Studies in Nutrition at the Hillman Hospital, Birmingham, Ala., and at the Calixto Garcia Hospital, Habana, Cuba, and from the School of Tropical Medicine, San Juan, Puerto Rico.

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[9] Spies, T. D.; Stone, R. E., and Aramburu, T.: Observations on the Anti-Anemic Properties of Vitamin $B_{12}$, South. M. J. **41**: 522-523 (June) 1948.

[10] Spies, T. D.; Garcia Lopez, G.; Milanes, F.; Lopez Toca, R., and Culver, B.: Observations on the Hemopoietic Response of Persons with Tropical Sprue to Vitamin $B_{12}$, South. M. J. **41**: 523-525 (June) 1948.

fatty stools and loss of body weight. According to these criteria a group of 21 patients was selected. This group included 4 patients with nutritional macrocytic anemia, 1 patient with nontropical sprue, 11 patients with tropical sprue and 5 patients with pernicious anemia.

Fourteen additional patients known to have pernicious anemia who also had subacute combined degeneration were selected for the purpose of studying the effect of vitamin $B_{12}$ on these neurologic changes, by use of the following criteria:

1. They either had or had had macrocytic anemia.
2. They had had megaloblastic arrest of the bone marrow.
3. They had histamine refractory achlorhydria on two or more occasions.
4. They had a sudden and recent onset of symptoms arising from the posterior and lateral column of the spinal cord.
5. They had had no antianemic therapy since the symptoms developed.

The patients were admitted to the hospital, and all but 5 patients with tropical sprue in Puerto Rico were given a diet devoid of meat and meat products, and they were maintained on this diet throughout the course of the study. The following laboratory studies were made by methods previously described[11]: examination of the peripheral blood,[12] which included frequent red and white blood cell determinations and packed cell volumes and daily reticulocyte counts; sternal bone marrow studies; oral glucose tolerance test; gastric analyses; gastrointestinal series and study of the small intestine, and examination of the stools for ova, parasites and occult blood.

OBSERVATIONS

The characteristic hematologic response to the injection of vitamin $B_{12}$ is shown in the table. The increase in the reticulocytes, number of red blood cells and amount of hemoglobin in a case of nutritional macrocytic anemia (case 2) is shown in figure 1; in tropical sprue (case 8), in figure 2, and in pernicious anemia (case 18), in figure 3.

In each case the administration of vitamin $B_{12}$ was followed by a striking clinical improvement. Between the third and fifth day after the injection of vitamin $B_{12}$, the patients volunteered that they felt stronger and that their appetites had returned. When soreness and burning of the tongue was present, it disappeared by the fourth or fifth day after therapy and the redness subsided. In the cases of sprue, the abdominal distention subsided, the volume of the stools decreased and the patients became less gaseous on the sixth or seventh day following therapy.

*Effect of Vitamin $B_{12}$ on Macrocytic Anemia*

| | | | Red Blood Cells (In Millions) | | | Hemoglobin (In Grams) | | | Reticulocytes | | | Dosage of Vitamin $B_{12}$ in Micrograms, Intramuscular |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Case No. | Name | Type of Macrocytic Anemia | Initial | 14th Day | Final (Day) | Initial | 14th Day | Final (Day) | 1st Day of Rise | Day of Peak | Per Cent at Peak | |
| 1 | L. B. | Nutritional | 2.50 | 2.98 | 2.62 (31) | 8.4 | 10.4 | 9.5 (34) | 4 | 6 | 6.9 | 6 |
| 2 | J. M. | Nutritional | 2.48 | 3.10 | 3.42 (29) | 9.1 | 12.2 | 11.5 (29) | 5 | 9 | 13.6 | 6 |
| 3 | C. C. | Nutritional | 2.02 | 3.26 | 2.99 (24) | 6.5 | 9.8 | 8.9 (24) | 4 | 6 | 18.9 | 6 |
| 4 | T. D. | Nutritional | 2.23 | 2.58 | 2.63 (15) | 8.1 | 9.4 | 10.2 (15) | 4 | 6 | 12.8 | 12 |
| 5 | J. S. | Nontropical sprue | 2.03 | 2.75 | 2.36 (21) | 8.1 | 10.6 | 9.2 (21) | 4 | 7 | 22.3 | 6 |
| 6 | M. J. | Tropical sprue | 2.14 | 2.68 | 2.72 (27) | 8.8 | 9.0 | 8.8 (27) | 5 | 8 | 9.0 | 8 |
| 7 | L. D. | Tropical sprue | 1.61 | 2.10 | 2.08 (34) | 6.4 | 6.9 | 7.3 (34) | 5 | 8 | 16.0 | 8 |
| 8 | F. M. | Tropical sprue | 2.22 | 2.85 | 3.17 (24) | 8.6 | 9.4 | 10.5 (24) | 3 | 7 | 14.0 | 15 |
| 9 | M. D. | Tropical sprue | 2.28 | 2.63 | 2.57 (24) | 8.7 | 8.9 | 9.3 (24) | 4 | 8 | 13.2 | 15 |
| 10 | J. A. | Tropical sprue | 1.41 | 1.77 | 1.72 (24) | 5.8 | 6.6 | 6.6 (24) | 5 | 8 | 15.4 | 15 |
| 11 | A. S. | Tropical sprue | 2.50 | 2.94 | 2.36 (24) | 7.8 | 8.2 | 7.9 (24) | 4 | 7 | 26.1 | 23 |
| 12 | E. R. | Tropical sprue | 1.59 | 2.08 | 2.52 (18) | 5.0 | 7.0 | 6.8 (18) | 4 | 6 | 20.2 | 10 |
| 13 | D. G. | Tropical sprue | 2.41 | 2.52 | 2.42 (25) | 7.6 | 8.1 | 7.6 (25) | 4 | 9 | 9.8 | 10 |
| 14 | A. S.* | Tropical sprue | 0.75 | 1.14 | 1.14 (14) | 2.9 | 5.0 | 5.0 (14) | 3 | 7 | 23.8 | 20 |
| 15 | M. C.† | Tropical sprue | 1.12 | .... | 1.19 (7) | 3.8 | ... | 5.0 (7) | 4 | 4 | 4.2 | 4 |
| 16 | J. G. | Tropical sprue | 1.49 | 2.20 | 1.86 (20) | 5.5 | 7.2 | 7.2 (20) | 4 | 8 | 26.8 | 25 |
| 17 | E. A. | Pernicious | 1.91 | 2.71 | 3.14 (31) | 7.2 | 9.0 | 9.4 (31) | 4 | 8 | 20.2 | 23 |
| 18 | T. C. | Pernicious | 2.37 | 3.36 | 3.43 (50) | 9.5 | 11.9 | 13.8 (50) | 4 | 6 | 12.8 | 6 |
| 19 | M. P. | Pernicious | 2.57 | 3.10 | 3.46 (20) | 9.5 | 9.9 | 11.2 (20) | 3 | 7 | 13.0 | 15 |
| 20 | W. G. | Pernicious | 2.46 | 3.76 | 3.21 (19) | 9.4 | 11.2 | 9.8 (19) | 3 | 5 | 16.6 | 12 |
| 21 | D. H. | Pernicious | 2.24 | 3.24 | 3.39 (22) | 8.6 | 10.6 | 11.5 (22) | 4 | 6 | 17.8 | 25 |

* This patient ate liver fifteen days after the injection of vitamin $B_{12}$.
† Seven days after the injection of 4 micrograms of vitamin $B_{12}$, this patient was given 100 mg. "diopterin" (pteroyl diglutamic acid) by mouth.

In the 14 cases of addisonian pernicious anemia, 9 with severe and 5 with mild subacute combined degeneration, the parenteral administration of vitamin $B_{12}$ was followed by remarkable improvement. Prior to its injection each of the patients complained of pain, tingling and stiffness in the extremities, and the patients with severer disease complained also of numbness, tingling and stiffness of the joints. These symptoms diminished progressively during the first ten days after the injection. Within two weeks after the administration of vitamin $B_{12}$, a dramatic improvement in the observations of peripheral nerve–posterior column involvement was observed in each case. This is illustrated in the following representative case history.

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[11] Spies, T. D.: Experiences with Folic Acid, Chicago, The Year Book Publishers, Inc., 1947.

[12] These studies were done with the assistance of Clemencia Benitez-Gautier, Belle Culver, Anne Ellis Godwin and Helen M. Grant.

### REPORT OF A CASE

S. H., a 71 year old white woman, became ill in 1939. Her illness was characterized by an insidious onset of dyspnea, palpitation and weakness. Three years later she was admitted to the Nutrition Clinic of the Hillman Hospital where a diagnosis of addisonian pernicious anemia with mild subacute combined degeneration of the spinal cord was made. This diagnosis was based on the following observations: red blood cells 2,130,000, hemoglobin 8.2 Gm. (53 per cent), color index 1.2, megaloblastic arrest of the bone marrow, histamine refractory achlorhydria and the presence of subacute combined degeneration of the spinal cord. She improved following the injection of potent liver extract. She returned to her home but would not continue maintenance therapy.

In March 1948, when she returned to the clinic, she complained of soreness of the tongue, which she said felt "scalded," anorexia, general weakness, dyspnea on exertion, constipation, numbness of the feet, legs and hands and slight swelling of the feet and legs. She attributed these symptoms, which had been slowly progressing for several weeks, to increased work and anxiety caused by the illness of her husband. Significant physical observations were: moderate pallor of the skin, nail beds and conjunctivas; hyperemia of the distal portions of the tongue and hypotrophic vascular papillae in the same areas; severe impairment of the tendon reflexes in the lower extremities (knee jerks absent, ankle jerks hypoactive); no vibratory perception at the ankles and knees, and only slight at the pelvis; suggestive slight impairment of position-motion sensibility of the toes; hypoesthesia to light touch in the lower two thirds of the thighs and in the legs, feet and fingers; hyperesthesia to pain in the lower part of the thighs and in the legs and slight pitting edema of the lower legs. Observations of the blood were: red blood cells 2,010,000, white blood cells, 5,250, hemoglobin 7.5 Gm. (48 per cent), packed cell volume 23 per cent, mean cell volume 114, mean cell hemoglobin 37 and mean cell hemoglobin concentration 33.

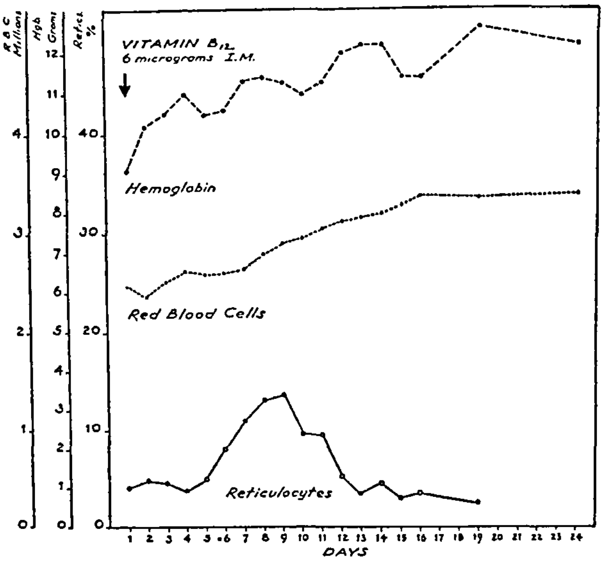

Fig. 1.—Hemopoietic response of a patient (J. M.) with nutritional macrocytic anemia to vitamin $B_{12}$.

Beginning on March 2, 1948, she was given 10 mg. of folic acid by mouth daily for eighty days. A peak reticulocyte count of 28.7 per cent occurred on the ninth day of therapy. By the eightieth day of therapy her blood values were: red blood cells 4,220,000, white blood cells 4,800, hemoglobin 14.6 Gm. (94 per cent), packed cell volume 44 per cent, mean cell volume 104, mean cell hemoglobin 34 and mean cell hemoglobin concentration 33. She improved very much generally; the glossitis subsided, her appetite improved and her strength increased to such an extent that she resumed doing her housework. The paresthesias persisted, but there was no evidence of further progression of the neurologic symptoms.

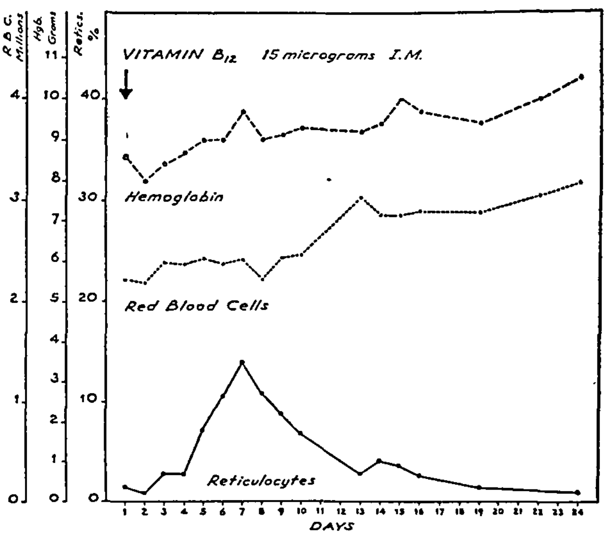

Fig. 2.—Hemopoietic response of a patient (F. M.) with tropical sprue to vitamin $B_{12}$.

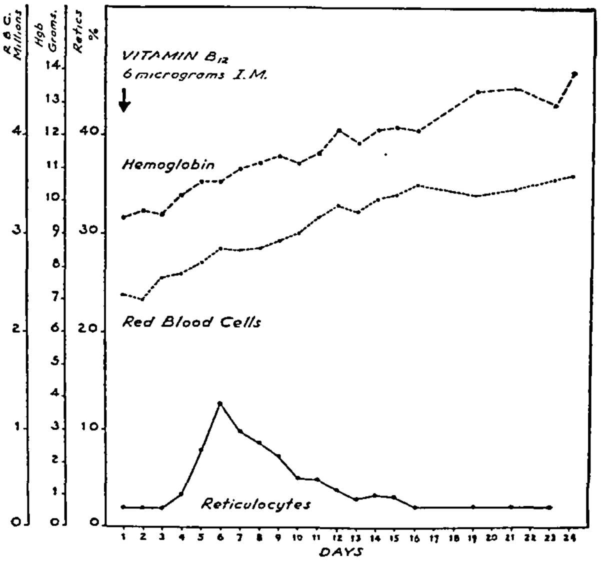

Fig. 3.—Hemopoietic response of a patient (T. C.) with pernicious anemia to vitamin $B_{12}$.

The folic acid therapy was terminated during the last week of May. Several weeks later a gradual decrease in the red blood cells and hemoglobin was noted and numbness recurred. By August 18, her red blood cell count was 2,740,000 and her hemoglobin 8.1 Gm. (53 per cent). She complained of general weakness, anorexia, dyspnea on exertion and paresthesias of about the same severity as noted before. The physical observations on this occasion were essentially the same as at the time of the last examination. There was no evidence of further progression of nervous system disease. Treatment with 10 mg. of folic acid daily by mouth was resumed. Within a period of six days, a neurologic relapse developed. Overnight, locomotion became so severely disturbed that she was unable to walk without assistance; her knee and ankle joints would give way or turn, and the lower extremities were weak. Her feet and legs felt cold and stiff. Her hands felt stiff and weak, and the difficulty she had in using a knife and fork, buttoning her clothes and combing her hair was very disturbing to her. The paresthesias of the lower extremities and hands became severe, and those of the hands began to spread proximally to the wrists; anorexia and tightness, fulness and distention of the abdomen and severe constipation were the outstanding symptoms.

The most significant physical changes observed at this time were obvious disturbance of locomotion and impairment of function of the hands. She was unable to arise from a sitting position and walk without assistance, and severe difficulty in picking up and manipulating small objects was demonstrated.

Twenty-five micrograms of vitamin $B_{12}$ was injected parenterally, and she received the same amount intramuscularly at the end of each forty-eight hours until a total of five doses was given. On the fourth day of treatment she was able to walk without support. On the fifth day she was able to perceive touch and pain in her extremities, whereas, prior to this time, it had been absent in the feet, legs and distal part of the fingers. By this time, she could discriminate texture with her fingers. On the sixth day after therapy was started, she had little weakness and little unsteadiness in walking. She was walking well on the tenth day, and the Romberg sign was no longer positive. The ankle jerks and knee jerks, which had been absent, returned. Twenty-six days after the initiation of vitamin $B_{12}$ therapy, she appeared to be over the acute exacerbation of her neurologic disease, and by this time her red blood cell count, which had been 2,050,000, had risen to 3,040,000 and her hemoglobin had increased from 9.3 Gm. (60 per cent) to 10.5 Gm. (68 per cent).

### COMMENT

This case is typical of many we have seen when folic acid neither protects against nor relieves subacute combined degeneration of the spinal cord once it has developed. This patient did not respond as well to therapeutic agents in general as many patients in the clinic, but when she cooperated long enough to be treated to completion, her blood values approached the accepted normal. The most interesting observation is that in the early stages of acute relapse of subacute combined degeneration, the lesion is evidently a "biochemical" one, for there is such prompt relief from the symptoms arising from the posterior and lateral column.

There is much difference among physicians regarding the pathogenesis of pernicious anemia, sprue and nutritional macrocytic anemia, yet it is obvious that an accurate diagnosis is the essence of clinical investigation. Hence, the cases chosen were such that any experienced physician would concur in their diagnosis. Despite the fact that these anemias occur throughout the world, certain types are much commoner in some countries than in others. In temperate zones only sporadic cases of sprue are seen, whereas in some tropical lands sprue is endemic. Pernicious anemia is much commoner in the temperate zones than in the tropics. Nutritional macrocytic anemia occurs rarely in the North Temperate Zone but occurs frequently in the South Temperate Zone and in the tropics. Recently we saw a patient in Cuba with achylia gastrica, steatorrhea and combined systemic disease. Recently in Puerto Rico we saw 3 cases of sprue with combined systemic disease. One of the patients had achylia gastrica, and the other 2 had free hydrochloric acid in the gastric juice. Gastric juice from the Cuban patient, when incubated with ground lean beef and fed to a patient known to have pernicious anemia in relapse, induced no hemopoietic response. Similar studies are being made on the gastric juice from the 3 patients in Puerto Rico. The symptoms arising from the combined systemic disease in the Cuban patient who had both pernicious anemia and sprue disappeared after the administration of vitamin $B_{12}$. The symptoms arising from the involvement of the spinal cord in 2 of the Puerto Rican patients slowly decreased after the administration of vitamin $B_{12}$. The third Puerto Rican patient was relieved of his combined systemic disease by liver extract therapy. As would be expected, the blood values of the 3 patients from Puerto Rico and the patient from Cuba all increased. The Cuban patient with achylia gastrica had very little gastric juice but after many days we obtained enough through a tube to send to Birmingham for incubation with beef. The incubated mixture was then given to a patient with pernicious anemia according to the original method of Castle. The pernicious anemia patient who responds well did not respond to this mixture, suggesting that there was a deficiency of an important element in the gastric juice of the Cuban patient.

The Cuban patient was then given by mouth 50 micrograms of vitamin $B_{12}$ concentrate (Merck) and observed for ten days. There was no clinical or hematologic or neurologic effect. Twenty-five micrograms of $B_{12}$ concentrate was then incubated with 75 cc. of normal fasting human gastric juice obtained from a person with duodenal ulcer. This mixture was given to the anemia patient and he had a hematological and clinical response. The reticulocytes began to rise on the third day and rose in a characteristic fashion. The symptoms of combined system disease greatly lessened and the patient got up and out of bed for the first time in a considerable period. This observation shows clearly that normal human gastric juice when incubated with $B_{12}$ is able to affect the utilization of $B_{12}$.

### SUMMARY AND CONCLUSIONS

Vitamin $B_{12}$, per unit of weight, is the most effective antianemic substance known. It has been found to produce a hematologic response in persons who have pernicious anemia, nutritional macrocytic anemia and tropical sprue. It is the only pure chemical substance known to be effective in relieving subacute combined degeneration in persons with pernicious anemia.

When vitamin $B_{12}$ is administered to suitable patients, under controlled conditions, reticulocytosis occurs and is followed by an increase in red blood cells, platelets and hemoglobin. A striking clinical response parallels the hemopoietic response. About the time the reticulocytes begin to rise, the patients volunteer that they feel stronger. Those whose appetites have failed have a sudden desire for food. Symptoms arising from subacute degeneration of the spinal cord in persons with pernicious anemia are benefited by the administration of vitamin $B_{12}$. The severe glossitis present in some cases of macrocytic anemia heals spectacularly. In patients with sprue and nutritional macrocytic anemia there is a decrease in the number of stools and a tendency for the stools to return to normal.

The dosage of vitamin $B_{12}$ varies greatly from patient to patient. We have observed a slight effect following the injection of as little as 4 micrograms and complete failure on as much as 10 micrograms. A response has occurred in every case when several times these amounts were administered. Perhaps the average patient will respond maximally to 100 micrograms or less. Most patients seem to respond minimally to from 8 to 10 micrograms.

Vitamin $B_{12}$ has no effect on the leukopenia of infections or the idiosyncrasies due to drugs, idiopathic purpura, secondary anemias, aplastic anemia or leukemia.

In the management of any of these syndromes of macrocytic anemia which respond to specific therapy, we follow these five principles:

1. Make a positive diagnosis early in the course of the disease.
2. Institute persistent and intensive therapy promptly.
3. Prescribe an amount of the therapeutic agent in excess of that just necessary to maintain the patient's blood at a normal level.
4. Prescribe a diet rich in animal proteins.
5. Treat promptly all coexisting diseases and any complicating factors.

We wish to stress that there is no place for careless diagnosis and casual treatment when liver, liver extract, "ventriculin" (preparation of desiccated hog stomach), folic acid and vitamin $B_{12}$ are employed as therapeutic agents. The failure of physicians to detect sprue, macrocytic anemia, pernicious anemia and other related anemias usually leads to a chain of unfortunate circumstances for the patient.

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## Special Article

# THE FUTURE OF MEDICINE IN TIMES OF WAR

JULES VONCKEN, M.D.
Liége, Belgium

The International Committee of Military Medicine, pursuing further its campaign to obtain improvement in the conditions of aid to the wounded and sick during wartime, has studied, through its Medico-Legal Commission, the position of medicine in the international order.

During armed conflicts physicians find themselves with a mission to fulfil which is unique in its extent and complex in its moral grandeur. In all epochs of civilization it has been an axiom of the most elementary international law that "hostes dum vulnerati fratres" (enemies when wounded become brothers). Since the nineteenth century, which saw the first international codification of duties involved in the organization of aid to the wounded, in the form of the Red Cross Convention, this concept has continued to advance, and it is consoling to observe that in spite of all the setbacks of political rapprochment, whether in the League of Nations or in the United Nations Organizations, the only structure which has been maintained is the Red Cross, probably because it places emphasis on respect for the suffering. Suffering being the same throughout the world and thus becoming a superior imperative before which nations must bow as before all physical scourges or epidemics, it is in common misfortune that even enemies dream of uniting in order to combat the scourge effectively.

It is the same with the scourge of war: In order to improve with a little hope the suffering of the wounded and sick, nations are willing to accept, for the common interest, respect for the humanitarian conventions.

Is not this an element of rapprochment which should at all costs be utilized and developed under present conditions? To those of good will, the coming diplomatic meeting, which will be held in Geneva in the spring of 1949, will give a great opportunity. This conference, which will bring together the plenipotentiaries of all nations of the world, should not be permitted to end before it has established an international code of medicine; thus, everything contributes at present to make this problem timely and to prepare a solution for the greater good of humanity.

For the first time in the history of the world, a war has ended in trial of the belligerents whose conduct had not conformed to international law or to the obligations which had been countersigned by the interested high contracting parties. What is even more important, physicians have been prosecuted for acts of "lèse-humanité."

The Nuremberg trials ought not to end with this verdict; they contain lessons from which the entire medical world ought to profit.

What are these lessons? First, the medical conscience cannot be subjugated to a government or to a state; it must derive its discipline from a moral sanction superior to the concept of the state; there should not be an obligation to obey orders which deprive the physician of his healing mission.

Furthermore, the physician's healing mission must be extended to all the wounded and sick, whatever their nationality or their race. A physician does not have the right to refuse to care for a human being under the pretext that he is an enemy of his country, and, as a parallel to this, no authority has the right to reproach a physician for having given aid, in any circumstances whatever, to a human being whose condition requires it.

These are the principles which it is absolutely necessary to formulate in the work which is beginning, and it can be said that the moment is opportune to bring it to a satisfactory conclusion. In fact, numerous medical assemblies have considered this great question and in the texts which they have published they have affirmed this necessity.

The Congress of Microbiology at Copenhagen has:

> proposed to support and adopt by acclamation that the Fourth International Congress of Microbiology together with the International Society of Cytology condemns as energetically as possible all forms of biologic warfare. The Congress believes that these absolutely barbaric methods are incompatible with any civilized community and hopes much that microbiologists of the entire world will make all efforts to prevent their own exploitation for this purpose.

The World Medical Association demands that every physician take an oath which regulates his professional conduct.

The International Committee of Military Medicine demands that there be added to the text of this oath the following paragraph:

> My duty, superior to all others, written or not written, will be to care to the best of my ability for him who has been placed in my care or who has entrusted himself to me, to respect his moral liberty and to be opposed to all cruelty which is attempted against him and to refuse my cooperation to any authority which request me to act contrary to this demand. Whether the patient be friend or enemy, even in time of war or civil disturbances, whatever be his opinion, his race, his party, his social class, his country, his connection, my care and my aid to his human dignity will be the same.

Thus, it is the international medical code which has to be reformulated. With this aim the Medico-Legal Committee of the International Committee of Military Medicine has proposed to prepare a codification of these regulations.

This is based on the following points:

1. The physician must render the same aid to his friend or to his enemy.
2. In no case should the physician be disturbed at having given aid to a wounded person whatever the nationality, race, religion or opinion of the injured, and whatever may be the circumstances in which the wounded is found.
3. The physician can never in any manner cooperate in works of general or individual destruction.
4. As a result, this set of duties confers on the physician a legal status, according to which he cannot be made a prisoner and according to which he must be granted in all times, and in all places, the right of his complete professional freedom.

This is the proposal set forth by the International Committee of Military Medicine. The World Health Organization and the World Medical Organization, in our opinion, should take a stand as soon as possible on this problem which affects the future of all medicine.

## *Clinical Notes, Suggestions and New Instruments*

### ANAPHYLACTIC DEATH FROM PENICILLIN

GEORGE L. WALDBOTT, M.D.
Detroit

Most allergic reactions from penicillin occur a few days after its administration, namely, as serum sickness or dermatitis. Such manifestations as asthma, vasomotor rhinitis or urticaria arising within a few hours are much less common. A search of the literature reveals no case reports of anaphylactic[1] shock from injections of penicillin. In one instance so designated[1a] there were symptoms of serum sickness.

The following fatality from penicillin is reported here because it represents typical anaphylactic shock. The circumstances leading to death conformed in every respect with my knowledge of this syndrome gained from experience with injections of horse serum, pollen and other antigenic substances.[2]

#### REPORT OF A CASE

Miss L. K., 39 years old, had had severe bronchial asthma since March 1945, which followed grass hay fever of eighteen years' duration and had been persistent since July 1946. Thorough diagnostic studies had been made, including roentgenograms of the chest, bronchograms, diagnostic bronchoscopic studies and intradermal tests. These revealed allergic asthma associated with decided emphysema and considerable emaciation. The patient had received the usual symptomatic treatment and a thorough hyposensitization regimen, both at a large allergy center and, since March 1948, in my office. Progress had been slow but steady; the attacks appeared less frequently; there was a gain in weight of 14 pounds (6 Kg.).

She stated that she had had penicillin for the first time in April 1947, receiving intramuscular injections every three hours for seven days. A second course, in May 1948, consisted of four daily doses of 300,000 units of procaine penicillin ;a third course, on June 30, consisted of 400,000 units administered in doses of 50,000 units every three hours. At no time had there been any ill effect from this therapy, and it was always followed by improvement of the asthma.

On August 18 at 10 a. m. she presented herself at the office with general malaise and temperature up to 101.5 F. of two days' duration. Examination of the chest showed asthmatic wheezing combined with some rales throughout the lungs. The patient was again given 2 vials of penicillin containing 200,000 units each, which was to be administered by her sister, a registered nurse, in doses of 50,000 units. She received her routine hyposensitization treatment (consisting of 2,800 units of short and long ragweed, 600 units of English plantain combined with 0.1 cc. of an extract of alternaria, monilia, torula, smut and yeast) and, in addition, ⅓ of a 3¾ grain ampule (0.08 Gm.) of aminophylline intravenously. When she left the office, after thirty minutes, the site of the antigenic injection showed no unusual degree of local edema and the wheezing had improved from the administration of aminophylline. After arrival at her home, she had only one slight coughing spell during luncheon (12:30 p. m.), but otherwise felt comfortable. At about 1:45 p. m., the first dose of penicillin (50,000 units) was administered into the gluteal region. Within five seconds the patient complained of a strange taste in her mouth and tongue and swelling and tightness in the throat and nose; her face became flushed, bloated and extremely cyanotic; she felt itchy "all over." Leaning over the kitchen table and asking for a glass of water, she collapsed and died immediately.

#### COMMENT

Although no autopsy could be done, the diagnosis of anaphylactic shock appears definite because of the characteristic symptoms (tightness in nose and throat, severe dyspnea associated with urticaria) and because of the onset within a few seconds after the hypodermic administration of penicillin. That the injection must have been given intravenously through accidental puncture of a vein is indicated by the appearance of blood at the site of injection and by the "strange taste" in the mouth which is so characteristic in intravenous therapy[3]—an ominous sign to anyone who deals constantly with allergic persons. The patient had had no drug or medication other than the routine antigenic injections given four hours previously; this could not have accounted for this accident.[2]

It must be assumed that sensitization to penicillin resulted from previous injections; otherwise the patient could not have tolerated the preceding penicillin treatment as well as she did. She would have had some manifestation of allergy, probably an aggravation of the asthma. I have seen severe asthma occur in 1 case shortly after the initiation of a second course of penicillin and in another after the first injection of a third course. In the former the attack was so severe that it required several days of intensive treatment before its effect was overcome. It is likely that in this case death would have resulted had the injection of penicillin been made intravenously. In the other patient, the asthmatic seizure was less severe and protracted.

In a review of my record, it was noted that this patient had had severe urticaria, some aggravation of asthma, joint pains and slight fever during the first part of July, about one week after the administration of penicillin. This had not been identified at the time as serum sickness from penicillin, but in all probability presented the outward signs of the development of sensitization to penicillin.

From the point of view of prophylaxis the following points should be emphasized. 1. One should always carefully inquire into the history of serum sickness from previous penicillin injections. Such a history should constitute a warning that sensitization to the drug might exist. 2. Intradermal tests, regardless of certain limitations in their usefulness, are still the best method for detecting sensitivity.[4] In any allergic patient who has had previous injections of penicillin, intradermal tests should be given at first with doses as low as 100 to 300 units; if results are negative, larger doses of 3,000 and 5,000 units may be used for intradermal tests after a fifteen minute interval. "Late" reactions occurring the following day have no bearing on such immediate manifestations of allergy as described herein. 3. If there is any indication of sensitization, intravenous administration of penicillin should be avoided. The usual precaution for avoidance of accidental intravenous injections should be carried out in the use of penicillin,[3] e. g., withdrawal of plunger for evidence of blood before the injection is made.

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[1] This term, I believe, is preferable to "allergic" shock, as a distinction between the two can no longer be upheld.

[1a] Wilensky, A. O.: Fatal Delayed Anaphylactic Shock After Penicillin, J. A. M. A. **131:** 1384 (Aug. 17) 1946.

[2] Waldbott, G. L.: The Prevention of Anaphylactic Shock, J. A. M. A. **98:** 446-449 (Feb. 6) 1932; Systemic Reactions from Pollen Injections, ibid. **96:** 1848-1851 (May 30) 1931; Allergic Shock: III. From Substances Other Than Pollen and Serum, Ann. Int. Med. **7:** 1308-1318, 1934.

[3] Waldbott, G. L., and Ascher, M. S.: The Role of Accidental Puncture of Veins in the Production of Allergic Shock, Ann. Int. Med. **9:** 1232-1239 (March) 1936.

[4] Peck, S. M.; Siegal, S.; Glick, A. W., and Kurtin, A.: Clinical Problems in Penicillin Sensitivity, J. A. M. A. **138:** 631-640 (Oct. 30) 1948.

As with other medications, more extended use of this drug will without doubt bring forth additional cases of this kind. The condition will occur in patients exhibiting other allergic sensitivities as well as in nonallergic persons who have had penicillin previously, especially if the time lapse between the previous course and the present one approximates the optimal interval for the development of experimental anaphylaxis, namely, two to four weeks.

# Council on Physical Medicine

## REPORTS OF THE COUNCIL

*The Council on Physical Medicine has authorized publication of the following reports.* Howard A. Carter, *Secretary.*

### AN APPRECIATION

The Council on Physical Medicine desires to take this opportunity to express its feelings of gratitude and appreciation for the services of the following consultants, whose assistance in carrying out the work of the Council has been given so freely during the past year: Drs. Edward Bigg, Raymond Carhart, Mrs. Eva Thompson Carson, Drs. Milton B. Cohen, M. Edward Davis, David C. Fainer, Theodore Friedemann, Clarence J. Gamble, Emil D. W. Hauser, W. D. Hawker, George Holmes, Helen Holt, Ernest Irons, Mr. Richard E. Jones, Drs. Mary Karp, H. Worley Kendell, Margarete M. Kunde, Claude N. Lambert, Victoire Lespinasse, Edwin R. Levine, Alfred Lewy, E. O. Molander, Arthur Mutscheller, Louis B. Newman, Benjamin H. Orndoff, Stafford L. Osborne, Scott N. Reger, Joseph Remlinger, Henry Schwerma, Ronald Simpson, G. deTakats, O. E. Van Alyea, Paul Wosika and C. R. Zeiss.

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*Occupational Therapy.*—Drs. Raymond B. Allen, Robert W. Johnson Jr., Winfred Overholser, Howard A. Rusk and William D. Stroud.

*Ophthalmic Devices.*—Drs. Thomas D. Allen, David G. Cogan, William F. Hughes Jr., Richard Scobee and Kenneth C. Swan.

*Respirators.*—Drs. Edward L. Compere, Charles F. McKhann and James L. Wilson.

*Roentgen Rays and Radium.*—Drs. W. Edward Chamberlain, Arthur C. Christie, Edwin C. Ernst, Gioacchino Failla, Fred M. Hodges, R. R. Newell, Eugene P. Pendergrass, Ursus V. Portmann, Lauriston S. Taylor and J. L. Weatherwax.

### PUR-AR-LITE GERMICIDAL AIR-PURIFIER NOT ACCEPTABLE

Manufacturer: Circlite Corporation, 118 South Clinton Street, Chicago 6.

The Pur-Ar-Lite Germicidal Air-Purifier 4 Watt Pin-Up Lamp is designed to be hung on the wall and to direct a portion of its rays into the upper parts of a room. The firm claims that this lamp may be used "in the kitchen," "in the bedroom," "in the bathroom" and "in public places"; that it "helps protect children and adults from colds, dangerous diseases, cuts down on doctor bills!" "helps keep air fresh, clean, sweet-smelling always" in "washrooms, restaurants, food stores, offices, hospitals . . . helps keep air pure, germ and odor-free" and "destroys cooking odors, bread box molds, preserves food longer in refrigerators!"

The unit consists essentially of two parts, a lamp source manufactured by the Sylvania Electric Products Co., Inc., and a fixture manufactured by the Circlite Corporation. The lamp draws 0.36 ampere on a 110-120 volt alternating current. The disinfecting radiation emitted by this lamp comes from a glow-discharge in mercury vapor and is mainly of wavelength 2,537 angstroms. The dimensions of the fixture are 23 by 7 by 6.4 cm. (9 by 2¾ by 2½ inches); it weighs 680 Gm. (1½ pounds). The shipping weight is 0.8 Kg. (1¾ pounds).

The housing for the lamp consists of a highly polished aluminum box, cylindric in front and flat at the back to permit hanging on the wall. Holes at the bottom and top of the box facilitate ventilation and circulation of air close to the lamp source housed within.

The evidence submitted by the firm to substantiate the electrical and physical characteristics was confirmed by the Council. The ultraviolet intensities observed at a distance of 1 meter were as follows: (1) for the bare lamp, $1.4\ \mu W/cm.^2$, and (2) for the lamp in its housing, $1.2\ \mu W/cm.^2$. These data show that the intensity of the 4 watt disinfecting lamp unit is only about 1/20 of the value of a single 30 watt lamp unit accepted by the Council.

After careful investigation, the Council held that this lamp is not effective to do that which is claimed for it. The firm submitted insufficient evidence to substantiate the claims, as for example the "Pur-Ar-Lite Air Purifier . . . the miracle of modern science . . protects your family, your home from deadly air-borne bacteria . . . eliminates disagreeable odors," or the claim the "Pur-Ar-Lite guards your family against disease" and the "Pur-Ar-Lite Air Purifier's powerful concentrated ultraviolet light rays quickly, instantly deal a death blow to menacing air-borne germs which spread colds, sore throats, flu, pneumonia, measles, scarlet fever, diphtheria, smallpox and other dread contagious diseases. Pur-Ar-Lite Air Purifier is a modern scientific method of insuring your family's health!"

The Council on Physical Medicine accepts ultraviolet disinfecting lamps for use in hospitals (one of the applications recommended by the Circlite Corp.), but, since this lamp gives only about 1/20 of the minimum value of a single 30 watt lamp, in the opinion of the Council it would be impractical to equip a hospital ward with a sufficient number of these lamps to be biologically effective in an enclosure containing a regimented population.

The Pur-Ar-Lite is pictured in the advertising as hanging on the wall, in the bedroom, in the bathroom and in public places. In the manner in which it is recommended for use the Council is not convinced in view of the evidence available that the Pur-Ar-Lite will provide any protection against cross infection of "colds, sore throats, flu, pneumonia, measles, scarlet fever, diphtheria, smallpox and other dread contagious diseases."

The Council on Physical Medicine voted not to accept the Pur-Ar-Lite Germicidal Air-Purifier Lamp for inclusion in its list of accepted devices because (1) the ultraviolet radiation is too weak to be effective for acceptable installations and (2) critical evidence has not been presented by the promoter to substantiate the claims made for it in other installations.

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SATURDAY, FEBRUARY 19, 1949

## AMERICAN MEDICAL ASSOCIATION PROGRAM FOR THE ADVANCEMENT OF MEDICINE AND PUBLIC HEALTH

On the page opposite appears the text of the expanded program of the American Medical Association developed over a period of years with a view to charting a safe and sure road toward advancement of the nation's health. Many of the planks in this platform have been advanced by the American Medical Association for many years. Thus the American Medical Association has urged the creation of a Federal Department of Health of cabinet status, in which all federal health activities could be coordinated and integrated, for more than seventy-five years.

The National Science Foundation bill was passed in 1948 by both the Senate and the House and vetoed by the President because of differences on the manner of administration. No doubt such differences of opinion will be adjusted and this measure will become effective.

The American Medical Association is now committed to urging the widest possible extension of sound systems of voluntary prepayment plans to meet the costs of hospital and medical care. Much confusion has resulted from differences of opinion as to how such extension could be best achieved, whether by a national insurance company, which would combine Blue Cross and Blue Shield plans, or by a coordination of voluntary and private prepayment plans into a single organization which would contract with the Blue Cross for various services. During the past week extensive negotiations have been held among those especially interested in this phase of the problem, and steady progress is being made toward a mutually satisfactory solution.

Among the difficulties in meeting the problems of persons in the low income group and of the indigent is the difficulty of utilizing funds developed by the individual states and the federal government without the establishment of a great new bureaucracy or the nationalization of health activities. The proposal has been made that there be established in each state a medical care authority or board which could receive such funds and distribute them where the need could be shown. The Association recognizes the right of the consumer in planning for medical care and urges proper representation of both medical and consumer interests on such state medical care authorities.

Today in the United States all persons properly informed as to medical conditions recognize the need for the establishment of diagnostic facilities and health centers, particularly in remote areas in which physicians dislike to practice because provision is not made for the use of technics of clinical pathology and roentgen ray, which are inseparable from good medical practice. The American Medical Association recognizes that funds have already been provided by the National Hospital Survey and Construction Act not only for the extension of hospital services but also for the development of diagnostic facilities and health centers. Notwithstanding the fact that every one concerned urged the passage of this act, the actual functioning has been pitifully slow. Whether or not the delay can be laid to local, state or national agencies concerned in this phase of progress, the fact remains that the leadership that should have come from federal agencies in promoting properly the development of these facilities has been noticeable by its absence.

All the health agencies in the United States are urging the extension of local public health units and services throughout the nation. Again and again leaders have pointed out that almost half of the counties in the United States are without such services. Through such local public health units the control of communicable diseases and of venereal diseases may be exercised. Here the vital statistics for the community may be assembled. In such agencies plans may be devised for maternal and child hygiene and for the extension of sewage facilities, which are lacking in thousands of communities. Here also the public health center may be located and public health laboratory services maintained. Notwithstanding the forward looking aspects of this program, every one should recognize that the greatest lack is in personnel. Our public health schools do not develop enough public health officials to meet the need, and technicians in all the accessory professions are also in short supply. Finally, the remuneration of public health officials is ridiculously small in view of the tremendous responsibilities that they carry for the health of the people.

The investigations that have been made in recent years indicate that psychiatric problems are coming rapidly to the fore as a primary cause of disability and illness. During the war institutions for the care of the mentally disturbed suffered the deterioration that was characteristic of many other medical agencies, in most instances due to lack of funds. Thus any comprehensive program for the care of public health must require the development of a program of mental hygi-

*(Continued on page 530)*

# PROGRAM OF THE AMERICAN MEDICAL ASSOCIATION FOR THE ADVANCEMENT OF MEDICINE AND PUBLIC HEALTH

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### A Federal Department of Health

1. Creation of a Federal Department of Health of Cabinet status with a Secretary who is a Doctor of Medicine, and the coordination and integration of all Federal health activities under this Department, except for the military activities of the medical services of the armed forces.

### Medical Research

2. Promotion of medical research through a National Science Foundation with grants to private institutions which have facilities and personnel sufficient to carry on qualified research.

### Voluntary Insurance

3. Further development and wider coverage by voluntary hospital and medical care plans to meet the costs of illness, with extension as rapidly as possible into rural areas. Aid through the states to the indigent and medically indigent by the utilization of voluntary hospital and medical care plans with local administration and local determination of needs.

### Medical Care Authority with Consumer Representation

4. Establishment in each state of a medical care authority to receive and administer funds with proper representation of medical and consumer interest.

### New Facilities

5. Encouragement of prompt development of diagnostic facilities, health centers and hospital services, locally originated, for rural and other areas in which the need can be shown and with local administration and control as provided by the National Hospital Survey and Construction Act or by suitable private agencies.

### Public Health

6. Establishment of local public health units and services and incorporation in health centers and local public health units of such services as communicable disease control, vital statistics, environmental sanitation, control of venereal diseases, maternal and child hygiene and public health laboratory services. Remuneration of health officials commensurate with their responsibility.

### Mental Hygiene

7. The development of a program of mental hygiene with aid to mental hygiene clinics in suitable areas.

### Health Education

8. Health education programs administered through suitable state and local health and medical agencies to inform the people of the available facilities and of their own responsibilities in health care.

### Chronic Diseases and the Aged

9. Provision of facilities for care and rehabilitation of the aged and those with chronic disease and various other groups not covered by existing proposals.

### Veterans' Medical Care

10. Integration of veterans' medical care and hospital facilities with other medical care and hospital programs and with the maintenance of high standards of medical care, including care of the veteran in his own community by a physician of his own choice.

### Industrial Medicine

11. Greater emphasis on the program of industrial medicine, with increased safeguards against industrial hazards and prevention of accidents occurring on the highway, home and on the farm.

### Medical Education and Personnel

12. Adequate support with funds free from political control, domination and regulation of the medical, dental and nursing schools and other institutions necessary for the training of specialized personnel required in the provision and distribution of medical care.

ene and the establishment of mental hygiene clinics in suitable areas.

Experience has shown that vast numbers of people are not only unaware of the basic principles of personal and public hygiene but also unaware of easily available medical facilities in their own neighborhoods. These people can be reached only by a program of health education directed specifically to them and utilizing the mediums of information with which they would be continuously in contact. Health education should be a function not only of federal agencies but also of state and local public health agencies and of the medical profession. The philanthropic and voluntary health organizations in the United States do a far better job in relation to such conditions as cancer, tuberculosis, heart disease, infantile paralysis and other conditions than do the governmental agencies.

As far as can be determined, proposed legislation, including that for compulsory sickness insurance, would not reach the aged. Neither would it satisfactorily cover those with long-standing chronic diseases nor such underprivileged groups as the Negro population and the Indians. Certainly special legislation would be required to provide facilities for care and rehabilitation of these groups.

The Hoover Commission and other governmental agencies which have recently been concerned with the vast wastefulness that prevails in medical care under federal governmental auspices have insisted that there should be integration of veterans' medical care and hospital facilities with other medical care and hospital programs. Already the public is aware of the losses that occur from duplication of medical facilities by the Army and Navy and Public Health Service. The changes that have come about in the care of the veteran since the fundamental change in administration that began with General Bradley and has been continued under Mr. Gray have raised tremendously the standard of veterans' medical care. Among the most important aspects of this procedure have been the care of the veteran in his own community by a physician of his own choice and the utilization of the voluntary insurance plans.

More emphasis on industrial medicine and the prevention of unnecessary accidents would vastly benefit the American people. Today accidents are fourth in the list of the causes of death. A suitable program on prevention of accidents would make available, according to recent estimates, more than 10 and possibly 15 per cent of the beds now occupied in all hospitals by the victims of accidents.

Finally, a system of medical care cannot rise above the level of the medical, dental and nursing education and the accessory medical professions. Today these agencies are without adequate funds to bring about necessary improvements. A voluntary foundation is in process of development in order to secure additional funds. Conceivably the states will do more for their state medical schools than they have done in the past. Possibly also federal funds may be necessary, but whenever governmental funds are used they must be employed under some system that would make their use free from political control, domination and regulation by governmental agencies.

This program is far more comprehensive than any yet proposed by either the President of the United States or the Federal Security Administrator. It has the advantage that it can be developed and administered as a logical evolution from the existing institutions in the United States without bringing about chaos through a complete overthrow of what has already been admitted by every one to be the highest quality of medical care available in any country in the world.

## Current Comment

### A PROTEST ON AMERICAN MEDICAL ASSOCIATION POLICY AND A REPLY

Under Association News in this issue of The Journal appears a protest signed by one hundred and forty-eight physicians, which has already had publicity in the press. Apparently it was released in New York by one of the five members of the committee which forwarded it to the American Medical Association, including Drs. George Baehr, New York; E. A. Park, Baltimore; Hugh Morgan, Nashville; Barry Wood, St. Louis, and Walter Bauer, Boston. The protest, as will be observed by physicians who can remember a similar previous incident, resembles the action taken by a so-called Committee of 400 who attempted to state their views against the policies of the House of Delegates of the American Medical Association. The present incident is particularly dismaying because it comes at a time when the medical profession of the United States, as represented by the American Medical Association, is in a critical struggle against the forces that would introduce nationalization of medicine into the United States. The experience of Great Britain indicates that the medical profession there, as represented by the British Medical Association, might have accomplished far more had they not been subjected to separate negotiations carried on by specialistic groups and others who wished for some reason to stand apart from the great majority of the medical profession. The Board of Trustees of the American Medical Association invited the committee to come before the full Board to present their point of view. This they did, the one hundred and forty-eight being represented by Drs. Hugh Morgan, E. A. Park, Barry Wood and Henry F. Helmholz. The Board itself was represented in the considerations by Dr. R. L. Sensenich, President of the Association, Dr. Elmer L. Henderson, Chairman of the Board, and Dr. Louis H. Bauer, Chairman of the Executive Committee of the Board. Notwithstanding presentation to this group of the program of the Association (which appears elsewhere in this issue), notwithstanding information given to them as to the progress that is being made toward the development of nationally functioning voluntary hospital and sickness insurance and notwithstanding many other important facts that they probably should have known, they persisted in their request that the protest with the one hundred and forty-eight names be printed. Fortunately the people of the United States are being steadily and continually enlightened by the educational program of the American Medical Association on the various aspects of the problems concerned in providing medical care. The action taken by the one hundred and forty-eight protesters will apparently have little if any influence on the ultimate results.

## LETTERHEADS EMPHASIZE TREND TO CENTRALIZED GOVERNMENT

Medical and public health agencies used to receive letters from the United States Public Health Service, a highly regarded agency of the federal government. This agency began as the Marine Hospital Service in the Treasury Department and for many years remained there, functioning as a professional agency with nominal responsibility to the Secretary of the Treasury but virtual self determination in professional matters. In like manner the United States Office of Education functioned in the Department of the Interior; its letterheads bore the title "United States Office of Education." A federal reorganization removed both these agencies from the departments in which they had previously been administered into a new welfare consolidation, the Federal Security Agency. Now the "U. S." portion of the title has disappeared from the letterheads of both the Public Health Service and the Office of Education. The titles of these agencies are in small type under the over-all aegis of the Federal Security Agency, which name looms large at the top of the letterhead. What significance should be attached to the metamorphosis of the letterheads of two professional agencies vitally concerned with public health and welfare? The Federal Security Administrator, Mr. Oscar Ewing, has been assuring the medical profession that it has nothing to fear from his plans for federalizing medical care. What appears to be happening to the professional services under the Administrator's authority is not reassuring!

## ENDOGENOUS PHTHISIS

In recent years superinfection in tuberculosis has been emphasized more and more by the epidemiologist. An endogenous development, however, is still defensible on clinical evidence as well as that supplied by morbid anatomy. While the question can hardly be decided, both superinfection and an endogenous development must be regarded as possible. The description of clearcut observations demonstrating the origin of the early foci is still necessary. Woolf[1] uses the term "endogenous development" not in the restricted sense of blood-borne spread from a recrudescent primary focus but more broadly to include those cases in which a primary or postprimary focus, following a protracted course involving several alternating periods of exacerbation and regression, constitutes a source for bronchogenic spread. The final recrudescence is often precipitated by an intervening nontuberculous disease. In this light, Woolf presents 4 cases with one feature in common: viz., the morbid anatomic evidence of local recrudescence—namely (*a*) the coexistence of calcified spots with liquefied areas and (*b*) the collection of enormous numbers of tubercle bacilli in the circumscribed foci in which liquefaction is beginning. Bacillary multiplication was demonstrable as the leading event in liquefaction. According to Woolf, local recrudescence of an old focus is a well defined entity in the development of phthisis. For this question of the actual origin of the focus, whether exogenous or hematogenous, primary or postprimary, does not appear to be as decisive as the fact of its longstanding presence and final breakdown. This constitutes the evidence of an endogenous development of phthisis in these cases; the further bronchogenic spread which will cause phthisis does not emanate from an outside source but from a lesion already present in the body for a long time. Endogenous development seems to constitute a definite source of phthisis. The part of malnutrition, exposure and diabetes in precipitating recrudescence appears to be demonstrated also.

## BLOOD SUGAR AND ACCLIMATIZATION

As might be expected from the reduction in partial pressure of oxygen, the most pronounced changes in the organism in response to high altitude are seen in the respiratory and circulatory systems. An increase in pulmonary total ventilation, a rise in concentration of hemoglobin in the blood and an increase in the number of red blood corpuscles in the systemic circulation ensue. That other far reaching disturbances may be expected from the anoxia induced by the reduction of barometric pressure is indicated by recent studies[1] of blood sugar changes in acclimatization to altitude. The normal response to low pressure is an increase in blood sugar. Subsequent more or less chronic anoxia failed to elicit such an increase which indicated that the mechanism involved in producing the hyperglycemia showed the effect of acclimatization. When the exposure to low pressure ceased most of the experimental animals (dogs) reverted to normal with respect to response of blood sugar to anoxia; in one, however, acclimatization persisted more than two months and in another, seven months. The precise mechanism of this phenomenon needs further study.

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1. Woolf, A. L.: Local Recrudescence as an Endogenous Source of Phthisis. Tubercle **29:** 221, 1948.

1. Van Liere, E. J.; Stickney, J. C., and Northrup, D. W.: Am. J. Physiol. **155:** 10 (Oct.) 1948.

# ORGANIZATION SECTION

## Official Notes

### A PROTEST AGAINST THE PRESENT ATTITUDES AND POLICIES OF THE A. M. A. IN REGARD TO THE PROBLEM OF MEDICAL CARE

Numerous comments by medical colleagues in various parts of of the country have convinced the undersigned physicians that a large segment of the medical profession is not in sympathy with many policies and actions of the American Medical Association on the extension of medical care. The $25 assessment levied in executive session on all members of the Association will place several million dollars at the disposal of its officials. Only an indefinite and constructively inadequate program has been presented outlining the way in which this huge fund will be used. The charge to Association officials is exceedingly vague, leaving the methods to be employed at their discretion and subject to the possibility of grave abuse.

If the funds are to be used for propaganda and legislative lobbying instead of developing a comprehensive medical care program, we are heartily opposed to the levy and shall refuse to pay it, and we urge all physicians with a sense of responsibility for the future of American medicine to register their protest. The significance of standpat propaganda will not escape the public. This will add to the already firmly rooted suspicion that the Association's objectives are primarily economic and selfish and will further weaken its standing as an altruistic agency devoted to the improvement of medical practice, research and education. We would gladly contribute if the funds were to be used to develop a carefully worked out, comprehensive plan to extend and improve medical care and education.

We believe that the fundamental failure of the American Medical Association in its attitudes and policies bearing on the general problem of medical care has been its unwillingness fully to acknowledge the need for improvement and to seize this particularly favorable opportunity to come forward with a comprehensive, constructive program which would be of clear advantage to the public as well as to the profession itself. Further, we believe that in the present crisis the obvious direct way to avoid an all-inclusive compulsory health insurance and to make secure the valuable features of our present system is for the Association to develop a program that will be manifestly so considerate of the needs of the people and at the same time so eminently fair to the interests of the physicians that it will command general approbation.

The undersigned believe that now is the time to voice our disapproval of the leadership and policies of the Association on the extension of medical care.

Warfield T. Longcope
Samuel A. Levine
S. Burt Wolbach
Eugene F. DuBois
Harold G. Wolff
David Barr
Ephraim Shorr
Paul Reznikoff
Earl Chapman
Nathaniel W. Faxon.
Stanley Cobb
A. A. Weech
Eugene B. Ferris
James L. Wilson
M. E. Lapham
Alfred E. Cohn
Duncan E. Reid
Chester S. Keefer
Samuel Z. Levine
Thomas M. Rivers
Thomas A. C. Rennie
Harold L. Temple
Allen O. Whipple
Joseph Aub
Henry K. Beecher
James C. White
Jacob E. Finesinger
A. B. Sabin
Maurice Levine
R. V. Platou
Alton Ochsner
Julius L. Wilson
Thomas L. Findley
T. E. McKell
Paul J. Murison
Albert J. Sullivan
L. S. Meriweather
W. Barry Wood
William M. Allen
Theodore E. Walsh
Carl V. Moore
Rustin McIntosh
Robert Ward
William C. Von Glahn
James Howard Means
Edith M. Lincoln
Robert Loeb
A. J. Kauvar
Daniel C. Darrow
Howard H. Mason
Randolph West
Albert R. Lamb Sr.
George H. Humphreys
C. G. de Gutiérrez-Mahoney
H. M. Keith
E. G. Hall
Paul A. O'Leary
E. G. Wakefield
Clark Dixon
Alfred Uihlein
James L. Gamble
William Parson
Thomas E. Weiss
M. B. Burris
Edgar H. Little
Theo. L. Soniat
Harry L. Alexander
Edwin F. Gildea
Alexis F. Hartmann
L. Emmett Holt Jr.
John H. Mulholland
W. B. Studdiford
S. Bernard Wortis
William S. Tillett
Currier McEwen
S. S. Kauvar
Grover F. Powers
Henry G. Poncher
Dana Atchley
Fordyce B. St. John
Virgil G. Damon
John S. Lockwood
Samuel Amberg
Charles Watkins
Henry M. Helmholz
Harold Lillie
S. B. Mills
Bert E. Hempstead
Helen B. Taussig
Francis F. Schwentker
Alan Guttmacher
William S. Ladd
Edwin Crosby
Milton E. Kirkpatrick
Myron C. Wegman
Hugh Morgan
Harry H. Gordon
Chester M. Jones
Oliver Cope
Hugh McCulloch
G. E. Wakerlin
Percival Bailey
W. W. Morrison
George Whipple
John J. Morton
John Romano
I. S. Ravdin
Francis C. Grant
Nicholson J. Eastman
Wilburt C. Davison
Amos Christie
James R. Dawson Jr.
James Bordley
Clinton Van Zandt Hawn
J. E. Edwards
Evarts Graham
Louis Hellman
Paul Harper
John J. Wittmer
Lawson Wilkins
Edwards A. Park
Samuel Wolman
R. L. Simmons
Sidney S. Chipman
Curtis J. Lund
Roy R. Grinker
Walter Bauer
Fuller Albright
Chester Frazier
Stanley Gibson
Francis L. Lederer
George Baehr
Murray H. Bass
William S. McCann
Carl M. Wilson
Joseph Stokes
Grier Miller
Alexander J. Schaffer
Grant Taylor
Eugene A. Stead Jr.
J. Cyril Peterson
Ernest A. Goodpasture
T. Campbell Goodwin
Francis F. Harrison
George Minot
Samuel Claussen
I. Ogden Woodruff
A. McGehee Harvey

### REPLY BY OFFICERS AND TRUSTEES

The preceding statement of protest requires an official reply by the Board of Trustees, since it is essentially a criticism of policies adopted by the House of Delegates, the representative body of the American Medical Association. The protest voices moreover distrust of the competence of the Board to administer the funds developed by the special assessment and emphasizes disapproval by the signers of the leadership and policies of the Association related to the extension of medical care.

Before analyzing the protest, the Board of Trustees calls attention to the fact that not one of the signers of the protest attempted, through direct inquiry to the headaquarters or to any official of the Association to determine:

1. Whether or not the American Medical Association has a program for the extension of medical care.
2. Whether or not measures were in effect to promote the activation of such a program.
3. The activities related to determining existing unmet needs for medical care.
4. The relationships established by the Association with organizations representing the farmer, labor, education, welfare and similar groups.

The first sentence of the protest intimates that "a large segment of the medical profession is not in sympathy," etc. Actual surveys indicate that at least 85 per cent of the medical profession is in sympathy and is voluntarily contributing the assessment.

The remaining sentences of the first paragraph express doubt as to the manner in which the Board of Trustees will administer the funds arising from the special assessment. The Board of Trustees, under the Constitution of the Association, is charged with full responsibility for all funds and property of the Association. The assets of the Association are in excess of $10,000,000 and the annual expenditures in excess of $4,000,000. The assessment funds will be spent according to plans already made and for which budgets have been approved. The statement has already been published and is here reaffirmed that this fund is not for lobbying nor in any way a "slush" fund, but that it will be devoted chiefly to education of the American people as to the present high quality of medical service in our country, as to the inevitable deterioration, as shown in other countries associated with a governmental system of medical care and also to accelerate in every way possible the enrolment of the people in voluntary hospitalization and medical care plans. This is the first time, since the Association developed into an important, financially significant organization, that any doubt has even been hinted as to the dependability of the Board of Trustees in administering the funds.

The second paragraph of the protest begins with an "if" clause; the signers could have learned on suitable inquiry before signing that the funds are not being used for "legislative lobbying." If education and information of the public relative to medical care in the United States are "propaganda" the signers should understand that such education is a significant part of the Association's program. The protest mentions an "already firmly rooted suspicion that the Association's objectives are primarily economic and selfish"; the allegation is made without specifying the extent of this suspicion or the names of those in whom it is "firmly rooted." Can it be that the signers of the protest are thus "firmly rooted" in their views? When the four representatives of the signers met with the Board of Trustees they were given full information as to the "comprehensive plan to extend and improve medical care and education." Whether or not they considered it "carefully worked out" and sufficient did not become apparent. They did continue to insist that their protest be published, notwithstanding their admission of unfamiliarity with the details of the Association's activities and its program.

The third paragraph of the protest alleges that the Association has been unwilling to "acknowledge the need for improvement." This statement is without any support by actual evidence. The "comprehensive, constructive program" of the Association printed in this issue of The Journal is proof to the contrary. This program is an extension and a broadening of previous programs, many phases of which have already been implemented.

In the original communication received from this group, the final paragraph read "The undersigned believe that now is the time to voice our disapproval of the leadership and policies of the Association." About a week later an additional clause was added indicating that this disapproval was limited exclusively to "the extension of medical care." When the four representatives conferred with the Board of Trustees they admitted that the phrase had been added and the sentence modified without notifying the original signers of the protest.

The Board of Trustees is convinced that the circulation and issuance of this protest is an unfortunate disservice to the cause of the medical profession of the United States. It is not based on knowledge or fact as to the policies or activities of the American Medical Association.

Signed:

Roscoe L. Senenich, President
R. W. Fouts, Vice President
Ernest E. Irons, President-Elect
Josiah J. Moore, Treasurer
F. F. Borzell, Speaker of the House of Delegates
George F. Lull, Secretary and General Manager
Morris Fishbein, Editor

Board of Trustees:

Elmer L. Henderson, Chairman
E. S. Hamilton, Secretary
Louis H. Bauer
Edward J. McCormick
Walter B. Martin
Dwight H. Murray
John H. Fitzgibbon
James Raglan Miller
Gunnar Gundersen

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## THE JUDICIAL COUNCIL COMMENTS ON REBATES

In the issue of The Journal of the American Medical Association, Oct. 30, 1948, page 650, under the heading "Council on Physical Medicine, Rebates," the following pronouncement is made: "When he, himself (the physician) furnishes drugs, spectacles or any physical appliance and when he is able to service such physical appliances, he is entitled to a fair profit on these articles of merchandise in addition to and above his own professional fee and such a profit on such articles of merchandise does not in any way constitute a rebate or 'kick-back.'"

That statement expressing an opinion which is entirely contrary to the Principles of Medical Ethics will doubtless cause confusion in the minds of many physicians and may be responsible for violation of the accepted Principles of Medical Ethics.

There has been no change made in the Principles of Medical Ethics. This statement is now printed in order that Chapter I, Section 6 may not be unwittingly violated. The statement reflects an action taken by the Judicial Council in St. Louis on Dec. 2, 1948.

Judicial Council.
E. R. Cunniffe, Chairman.
Louis A. Buie.
Walter F. Donaldson.
H. L. Pearson Jr.
George F. Lull, Secretary.

## Washington Letter

*(From a Special Correspondent)*

Feb. 14, 1949.

### Immigration of 500 Displaced Physicians Sought

A bill (H. R. 2018) introduced in the House by Representative Case (South Dakota) has as its purpose the amendment of the Displaced Persons Act to permit admission into the United States of 500 displaced doctors and 1,000 nurses for employment in government hospitals. Modification of the displaced persons law to rectify a number of inequities is almost certain to be accomplished this year, and the Case plan probably will be considered by the House Judiciary Committee in conjunction with other proposed amendments.

### Hawley Critique Made Public by Senator Lodge

Signs that Senator Henry Cabot Lodge Jr., Republican, of Massachusetts, will aline himself with members of Congress prepared to vote against compulsory sickness insurance were seen in his issuance, on January 31, of a letter which he had received from Dr. Paul R. Hawley. The letter has been printed in the *Congressional Record* of that date. It says that the executive committee for the National Health Assembly, held in Washington last May under Federal Security Agency auspices, served more as "window dressing" than as an executive body with a working role; that the names of its members were used by Administrator Oscar R. Ewing in a manner that bordered on "sharp practice" and that the fact that the ten year health plan subsequently issued by Ewing did not necessarily coincide with views of the National Health Assembly was not made sufficiently conspicuous in the Ewing report.

"I am firmly convinced," wrote Dr. Hawley, chief executive officer of the Blue Cross and Blue Shield Commissions, "that compulsory health insurance will inevitably lower the quality of medical practice in this country. This will be a thousand times worse for our people than a distribution of medical care which may not be all that we want it to be. I think it far more important that 80 per cent of our people obtain medical care of the highest quality than that 100 per cent get only low quality medical care. . . . Compulsory health insurance will force a lowering of quality that can never again be raised."

### Farm Bureau Federation Protests S. 5 Bill

The Senate Committee on Labor and Public Welfare has received from the American Farm Bureau Federation a strong protest against enactment of compulsory sickness insurance. Representing a membership of 1,325,000 farm families, the federation urged the committee, to which the new Murray-Wagner-Dingell bill (S. 5) has been referred, to refrain from reporting the measure to the Senate floor before opponents receive a full hearing.

"We strongly oppose plans under which the Federal government would embark on programs providing similar services on a compulsory basis," said the federation, with reference to medical care now being performed by voluntary organizations. "We have consistently opposed compulsory health insurance. We favor voluntary programs providing hospital and medical care, facilities to train more doctors and nurses, establishment of local public health units and a broad program of health education."

Presently devoting practically all its time to the task of amending labor legislation, the Senate Committee on Labor and Public Welfare is not expected to schedule public hearings on national health legislation before the latter part of March.

### Federal Arthritis Legislation Introduced

A concerted drive to have Congress enact special legislation to stimulate research, training and other factors in arthritis and rheumatic diseases was launched late in January. Bills that would do in this field what the federal government already has done in cancer, heart disease, mental hygiene and dental research were introduced simultaneously in House and Senate by Representatives Priest, Javits, Keefe and Smathers and Senators Pepper and Murray. A speech in support of the legislation was delivered on the House floor by Representative Judd, a physician. It is probable that public hearings on the bills will be held by the Senate Labor and Public Welfare Committee and the House Interstate and Foreign Commerce Committee.

# Medical Legislation

## STATE LEGISLATION

### Arizona

**Bills Introduced.**—H. 36 proposes the enactment of a complete revision of the traffic laws including the admissibility in evidence, in criminal prosecutions, of the results of chemical analyses of **the defendant's blood, urine, breath or other bodily substance** which have been made to determine whether or not the accused is under the influence of intoxicating liquor. *H. 82 proposes a complete revision and reenactment of the* medical practice act. Among some of the important changes suggested are the right to make use of the injunctive process in enforcing violations of the act and the declaration that **the giving or receiving of rebates** shall be construed to be within the meaning of unprofessional conduct. S. 40 proposes to require **applicants for a marriage license** to present a certificate of a duly licensed physician stating that the applicant has been given an examination for syphilis and other venereal diseases and that the applicant does not have such disease in a communicable stage.

### Arkansas

**Bills Introduced.**—H. 225, to amend the basic science act, proposes **to exempt chiropractors** therefrom. S. 75 proposes to require all **applicants for a marriage license** to file a medical certificate from a duly licensed physician which certificate shall state that the applicant has been *given such physical examination as may be necessary for the* discovery of syphilis and that in the opinion of such physician the person is not infected with syphilis in a stage which is or may become communicable to the marital partner.

### Georgia

**Bills Introduced.**—S. 77 proposes the creation of a state **board of naturopathic examiners** and defines naturopathy as meaning the use and practice of mechanical, medical and psychologic health sciences to aid in purifying, cleansing and normalizing human tissues for the preservation or restoration of health according to the fundamental principles of anatomy, physiology and applied psychology as may be required. Naturopathic practice employs among other agencies phytotherapy, dietetics, psychotherapy, hydrotherapy, zone-therapy, biochemistry, external applications, electrotherapy, mechanotherapy, mechanical and electrical appliances, hygiene, *first aid, sanitation and heliotherapy; provided, however,* that nothing in this act shall apply to or affect the practice of surgery, chiropractic or osteopathy or other healing art licensed in the state. S. 79 proposes that **applicants for a marriage license** must present a certificate signed by a qualified physician licensed to practice medicine and surgery in any state or United States territory indicating that the applicant has been given an examination and that in the opinion of the examining physician the applicant is not infected with syphilis in a *communicable stage. S. 84 proposes the creation of a state board of* **examiners for physical therapy technicians** and defines physical therapy as the therapeutic use of physical agents and comprises the use of physical, chemical and other properties of heat, light, water, electricity, massage and exercise. The proposal further requires that a physical therapy technician is one trained to apply the measures of physical therapy treatment which have been prescribed by a licensed member of the healing arts.

### Idaho

**Bills Introduced.**—H. 34 proposes the repeal of and the reenactment of the medical practice act of the state with extensive amendments. Among other changes, are the creation of an **independent state board of medical examiners**, provisions for the granting of temporary licenses and authorization to make use of the injunctive process in enforcing violations of the act. S. 51 proposes that the members of the board of any public hospital shall not be **liable** either individually or as board members **for the negligence of any employee**, servant or agent of the hospital which may result in injury or damage to any person, unless said board member shall have actively participated in his individual capacity in said act or acts of negligence upon which the action is based.

### Illinois

**Bill Introduced.**—H. 51 proposes the enactment of a comprehensive **hospital licensing law.**

### Iowa

**Bills Introduced.**—H. 240 and S. 220 propose that a trial court may direct a complainant, her child and the defendant, in **paternity actions,** to submit to one or more blood tests to determine whether or not the defendant can be *excluded as being the father of the child. The result* of the test shall be receivable in evidence but only in cases in which definite exclusion is established. H. 274, to amend the prenatal examination law, proposes to further require the physician to make a standard **test for the Rh factor.**

### Massachusetts

**Bill Introduced.**—H. 1901 proposes that **every examining board** for a profession, trade or business in the state shall have at least one public member who shall not be engaged in or qualified to engage in that particular profession. It would be the duty of such public member to represent the interests of the public and particularly to take cognizance of all attempts to adopt restrictive practices affecting the general welfare including all practices tending to prevent properly qualified persons from engaging in the profession, calling, trade or business and other restrictions and practices tending toward control thereof by small groups or discouraging individual initiative and free enterprise in the carrying on thereof and of all practices tending toward undue enhancement of prices for services to the public by persons engaged in such professions, callings, trades and businesses.

### Minnesota

**Bill Introduced.**—S. 197 proposes certain amendments to the law relating **to osteopathy** among which is the statement that osteopathy is a complete school of medicine and surgery based upon the fundamental principles of the osteopathic concept which are different from those principles recognized by other complete schools of medicine and surgery. Osteopathic schools are to be approved in accordance with standards and procedures filed with and approved by the State Board of Osteopathic Examiners. Standards and procedures for approval may be filed with the board of the national association of osteopathic physicians and surgeons to which belong the majority of the osteopathic physicians and *surgeons maintaining membership in a professional organization* and osteopathic hospitals or colleges shall be inspected and approved in accordance with these standards and procedures by that national association.

### New Mexico

**Bill Introduced.**—H. 46 proposes the creation of a state board of **naturopathic examiners** and defines naturopathy as including the diagnosis and practice of physiologic, psychologic, mechanical and material sciences of healing the human body; hygienic and sanitary measures incident to the care of the body and prevention of disease; corrective body manipulation and gymnastics; psychotherapy; use of heat, cold, air, water, light, earth, color, vibration, electricity or other forces and elements of nature; dietetics, which include the prescribing or administering of whole, raw, cooked, treated, concentrated or manufactured foods of such biochemical tissue building or normalizing products and cell salts as are found in a normal human body or necessary to maintain a body in a normal state of nutrition and health and the use of vegetal oils, fruits, seeds, barks, herbs, roots and vegetables, and such other elements and measures as may be developed by naturopathic science.

### North Dakota

**Bills Introduced.**—S. 226 proposes to prohibit the delivery of **barbiturates** to any person except by a pharmacist upon an original prescription from a person licensed by law to prescribe and administer barbiturates. The delivery by a practitioner in the course of his practice is exempted from the provisions of the proposal. S. 227 proposes that any graduate of any trade or professional school under the jurisdiction of the **state board of higher education** of North Dakota shall be licensed and entitled to practice that trade or profession in the state.

### Oklahoma

**Bill Introduced.**—H. 162 proposes to prohibit the delivery of **barbiturates** except by a pharmacist upon an original prescription from a person *licensed by law to prescribe and administer barbiturates.* The delivery of barbiturates by a physician in the course of his practice is exempted from the provisions of this proposal.

### Wyoming

**Bills Introduced.**—H. 39 proposes the creation of a **Board of Naturopathic Examiners** and defines naturopathy as "the science of natural methods of healing by the use of any and all the mechanical, chemical or material forces of Nature, including diagnosis and treatment by the physical, mechanical or chemical methods and further includes the use of herbs, minerals, diet, manipulation and physical therapy which is the use of air, water, light, electricity; but does not include the use of major surgery. S. 20 proposes to repeal the hospital licensing law enacted by the 1948 legislature. S. 71 proposes **the creation of an interim committee** to consider minimum standards for the licensing and operation of hospitals in the state.

# Coming Medical Meetings

Alaska Territorial Medical Association, Juneau, March 3-5. Dr. William P. Blanton, Box 2569, Juneau, Secretary.

American Academy of General Practice, Cincinnati, Netherlands Plaza Hotel, March 7-9. Mr. Mac F. Cahal, 231 W. 47th St., Kansas City, Mo., Ex[illegible]

American [illegible] gery, New Orleans, March 29-31. Dr. Bria [illegible] University Hospital, Washington, D. C., Secretary.

American College of Physicians, New York, March 28-April 1. Dr. George Morris Piersol, 4200 Pine St., Philadelphia 4, Secretary General.

[illegible] c Association, Chicago, Stevens Hotel, April [illegible] h.D., 1790 Broadway, New York 19, Secretary.

[illegible] Society for the Advancement of Plastic and [illegible] New York, Hotel Waldorf-Astoria, March 4. [illegible], 291 Whitney Ave., New Haven 11, Conn., Secretary.

Arkansas Medical Society, Little Rock, April 14-16. Dr. William R. [illegible] n Ave., Fort Smith, Secretary.

[illegible] Annual Clinical Conference, Chicago, Palmer [illegible] r. H. Kenneth Scatliff, 30 N. Michigan Ave.,

[illegible] Society, Dallas, Texas, March 14-17. Miss [illegible] edical Arts Bldg., Dallas, Executive Secretary.

Michigan Postgraduate Clinical Institute, Detroit, Book-Cadillac Hotel, March 23-25. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing 8, Mich., Secretary.

Missouri State Medical Association, Kansas City, March 27-30. Mr. T. R. O'Brien, 634 N. Grand Blvd., St. Louis 3, Secretary.

New Orleans Graduate Medical Assembly, New Orleans, Municipal Auditorium, March 7-10. Dr. W. D. Beacham, 1430 Tulane Ave., New Orleans, Secretary.

Postgradute Assembly in Endocrinology, Association for the Study of Internal Secretions, Oklahoma City, Feb. 21-26. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary

Southwest Allergy Forum, El Paso, Texas, Hotel Paso del Norte, April 4-5. Dr. O. E. Egbert, First National Bank Bldg., El Paso, Secretary.

Tennessee State Medical Association, Chattanooga, April 12-14. Dr. W. M. Hardy, 706 Church Street, Nashville 3, Secretary.

# GOVERNMENT SERVICES

## ARMY

### SHIPS DOCTORS WANTED

The Transportation Corps of the Department of the Army is accepting applications for civilian positions of ships doctors aboard Army transports. These vessels are operated by the Army for the International Refugee Organization in connection with the resettlement of displaced persons from Europe to various countries throughout the world. Doctors who are accepted for such employment join their ships at New York and sail for Europe and thence to South American ports or other ports throughout the world. Voyages generally are of 60 to 90 day duration with vessels returning to New York. The salary is $450 per month plus maintenance. Applicants may apply for one or more voyages and are not bound to serve beyond one voyage. They must be licensed physicians, U. S. citizens and available to leave on short notice. Information may be obtained by writing to: Crewing Section, New York Port of Embarkation, 1st Avenue and 58th Street, Brooklyn, N. Y.

### ARMY INSTITUTE OF PATHOLOGY

Dr. Jesse Edwards, of the Mayo Clinic, Rochester, Minn., lectured to the staff of the Army Institute of Pathology January 27 on "Pathology of Coarctation of the Aorta."

Dr. Henry A. Pinkerton, Kirkwood, Mo., who is at present studying malnutrition and erythroblastosis fetalis at the Institute of Pathology, presented a special lecture to the staff January 26 on "Inclusion Disease (Salivary Gland Virus Infection) as a Cause of Death in Infants."

Major Alexander R. T. Lundie of the British Royal Army Medical Corps reported to the Army Institute of Pathology for a six month study of the effects of atomic radiation.

Colonel Harvey A. Liversay, of Manila, Philippine Islands, reported to the institute January 24 for a two month study of general pathology.

Dr. Raymond A. Boyce, University of Minnesota, Minneapolis, reported to the institute January 15 for a six month study of urologic pathology.

## NAVY

### PSYCHOLOGY COMMITTEE MEETS AT SEA

The Secretary of the Navy invited the Committee on Aviation Psychology of the National Research Council to participate in a cruise on the aircraft carrier *Saipan* to Guantanamo Bay, Cuba, during which time the committee held its regular meeting. The Committee left Washington by air January 27 for Norfolk, Va., where they boarded the carrier for the cruise, returning February 5 by air. Among the subjects discussed were the Navy's current research program in aviation psychology and the progress made on investigations conducted by the Bureau of Medicine and Surgery of the Navy. The Committee also inspected the aviation facilities in the Guantanamo Bay area. The following members of the committee, together with a group of Navy officers, made the cruise: George Bennett, president, Psychological Corporation, New York; Dean R. Brimhall, head, Department of Research, Civil Aeronautics Administration; Glenn Finch, head, Department of Psychology, Office of the Air Surgeon, U. S. Air Force; Paul Fitts, head, Department of Psychology, Aero Medical Laboratory, Wright Field, Ohio; Eric Gardner, head, Department of Psychology, Syracuse University, Syracuse, N. Y.; Frank Geldard, head, Department of Psychology, University of Virginia; Morris S. Viteles, head, Department of Psychology, University of Pennsylvania, and chairman of Committee on Aviation Psychology; E. S. Ewart, secretary, Committee on Aviation Psychology; J. C. Flanagan, head, Department of Psychology, University of Pittsburgh, president, American Institute for Research; P. J. Rulon, dean, Harvard Graduate School, Cambridge, Mass., president, Educational Research Corporation; David Bakan, department of psychology, Ohio State University; A. C. Williams, head, department of psychology, University of Illinois; Capt. W. E. Kellum, M.C., U.S.N., School of Aviation Medicine and Reesarch, Pensacola, Fla.; Committee on Aviation Psychology; Lieut. Comdr. W. J. Robinson, U.S.N.R., Special Activities Branch, Aviation Medicine Division, Bureau of Medicine; Lieut. H. J. Older, U.S.N., Aviation Psychology Branch, Aviation Medicine Division, Bureau of Medicine; Lieut. W. F. Madden, M.S.C., U.S.N., Committee on Aviation Psychology; J. W. MacMillan, Medical Science Division, Office of Naval Research; Comdr. N. L. Barr, M.C., U.S.N., Special Activities Branch, Aviation Medicine Division, Bureau of Medicine.

## MISCELLANEOUS

### THE GOVERNMENT NEEDS NURSES

The U. S. Civil Service Commission announces an examination for staff nurse and head nurse, paying $2,974 and $3,727 a year respectively. Applicants must pass a written test and have had appropriate nursing education or a combination of such education and experience. Before being appointed, competitors must be registered as graduated professional nurses; however, applications will be accepted from nonregistered graduate nurses who are otherwise qualified. These positions are open in Washington, D. C., throughout the United States, in Alaska and in the Panama Canal Zone. For the Canal Zone, the maximum age limit is 35 years, and for staff nurse positions in the Indian Service, 40 years. These age limits are waived for persons entitled to veteran preference. Those interested may obtain application forms from Civil Service offices, first and second class post offices or from the United States Civil Service Commission, Washington 25, D. C. Applications must be received in the Commission's Washington office not later than March 29, 1949.

### PHARMACOLOGISTS WANTED

The U. S. Civil Service Examiners, Army Chemical Center, Md., announce that applications will be accepted by the Board at the above address for the positions of physiologists and pharmacologists, paying from $3,727 to $6,235 and $3,727 to $8,509 per annum respectively. Among the duties of the physiologists will be to conduct experimental programs designed to evaluate the physiologic effects of chemical agents on human subjects and to investigate the problems of shock and burns and to coordinate the research activities in physiology in one or more groups of scientists. Among the duties of the pharmacologists will be to delineate the effects and action of drugs and chemical agents and to conduct research programs designed to determine the toxicities of chemical agents by inhalation by the use of gas chambers, precision gassing experiments and analysis of concentration of chemical agents. The qualifications for these positions may be learned by writing to the Board of U. S. Civil Service Examiners, Army Chemical Center, Md. Application forms may be obtained at first or second class postoffices.

# Medical News

**(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)**

## ARKANSAS

**Meeting on Neuropsychiatry.**—The Veterans Administration Hospital, North Little Rock, will sponsor a neuropsychiatric meeting comprising lectures, seminars and demonstrations at the hospital February 28-March 1. Among the speakers will be:

Franz G. Alexander, Chicago, Psychosomatic Point of View in Modern Medicine.
Henry C. Chenault, Little Rock, Place of Psychiatry in Medical Education.
Jacob L. Moreno, New York, Value of Psychodrama and Group Psychotherapy.
Henry N. Peters, Ph.D., Little Rock, Abstract and Concrete Thinking in Personal Maladjustment.

Other speakers will be Drs. Edwin F. Gildea, St. Louis; Daniel Blain and Walter S. Freeman, Washington, D. C.; Harold W. Sterling, North Little Rock; Henry G. Schwartz, St. Louis; George S. Stevenson, New York, and Miss Inez Wilson, R.N.

## CALIFORNIA

**Tenth Anniversary of California Physicians' Service.**—On February 2 the California Physicians' Service observed the tenth anniversary of its founding. More than 710,000 Californians are beneficiary members, and the plan is served by 9,500 participating physicians. Each month the service pays an average of 23,000 claims on behalf of its members totaling more than $1,000,000. The California Physicians' Service, founded and sponsored by the California Medical Association, is a voluntary free enterprise which has proved capable of meeting the health needs of the people. Its administration is directed by a fourteen man board of trustees, eleven of them members of the medical profession.

## ILLINOIS

**Lectures for Laymen.**—The Illinois State Medical Society has arranged a series of public lectures on adult health problems in Oak Park. All of the lecturers are Chicagoans.

Feb. 15, W. W. Bauer, Fair Fat and Past Forty.
Feb. 22, David Slight, Nervousness and Its Causes.
March 1, Maurice H. Cottle, Seeing, Breathing and Hearing.
March 15, Howard A. Lindberg, Take Care of Your Ulcer.
March 29, Gilbert H. Marquardt, Growing Old Gracefully.
April 5, John T. Reynolds, What About Cancer?
April 12, James H. Hutton, How's Your Blood Pressure?

### Chicago

**Gifts to Surgical Department.**—Two gifts totaling $65,000 have been received by the Northwestern University Medical School from the Lois Grunow Memorial Clinic, Phoenix, Ariz. The sum of $50,000, to be known as the Lois Grunow Surgical Fund, has been allocated in support of the department of surgery and $15,000 has been designated as the Lois Grunow Professorship Fund to finance a professorship in the surgical department.

**Personals.**—Dr. Meyer A. Perlstein held a clinic in Hammond, Ind., February 16 for the Indiana Society for Crippled Children and Adults.——At the eighth Pan-American Congress on Tuberculosis in México, D. F., January 23-29, Dr. Edwin R. Levine spoke on the "Relation of Chronic Bronchial Infection to the Impairment of Pulmonary Function" and Dr. Henry C. Sweany on "A Pathologic Investigation of Tuberculosis Pleuritis."——Dr. Paul H. Hollinger, assistant professor of otolaryngology, University of Illinois College of Medicine, on January 18 gave an illustrated lecture at the Naval School of Aviation Medicine, Pensacola, Fla., on the treatment of throat diseases.

## KENTUCKY

**Rural Scholarship Fund.**—Up to January 1 thirty-two loans had been granted to twenty-one worthy medical students who on completion of training will practice in the rural districts of Kentucky. At a recent meeting of the Board of Trustees of the Scholarship Fund, which is sponsored by the Kentucky State Medical Association, applications of four additional students were approved.

**Citizens Health Committees.**—Under the direction of Dr. Bruce Underwood, state health commissioner, plans are under way to organize citizens health committees in every county of the state to represent the people in public health problems related to the work of the county health departments. These committees will assist the county health officers in developing and maintaining public health programs.

**Dr. Moore to Retire.**—Dr. John W. Moore, dean of the University of Louisville School of Medicine, has requested retirement to become effective in June. He was appointed dean in 1929. In 1936 he was the recipient of the faculty award of merit. Dr. Moore received his bachelor of science degree from Davidson College in 1906 and in 1912 was graduated from the University of Pennsylvania School of Medicine, Philadelphia.

## MICHIGAN

**New Heart Association.**—The Michigan Heart Association was established January 26 as an affiliate of the American Heart Association to develop and encourage research, education and community programs. Dr. Warren B. Cooksey, Detroit, was elected president and Dr. L. Fernald Foster, Bay City, secretary-treasurer. Initial plans were laid for Michigan two years ago, when the state medical society appointed a committee of fifteen physicians to study problems of organizing a Michigan chapter. The committee has had the assistance of prominent civic and lay persons.

**Appoint Rheumatic Fever Coordinator.**—Dr. Leon DeVel, Grand Rapids, became medical coordinator of Michigan's Rheumatic Fever Control Program January 1. He will integrate and standardize thirty rheumatic fever control centers throughout the state and aid in organizing additional centers. All the centers are maintained through a grant to the Michigan State Medical Society by the Michigan Society for Crippled Children and Adults. Dr. DeVel, a graduate of the State University of Liége, Belgium, located in Grand Rapids in 1928 and has practiced there continuously except for three years served in the Medical Corps of the Army of the United States.

## MINNESOTA

**Lectures on Conservation of Human Resources.**—The Minneapolis public schools are sponsoring an inservice course on "Conservation of Human Resources with Emphasis on the Handicapped Youth." Remaining lectures will be held in the auditorium of the Bryant Junior High School from 4 to 5:30 p. m. as follows:

March 1, Abe B. Baker, Epilepsy, Causes and Treatment.
March 8, John H. Gammell, Diseases and Defects of the Eye.
March 15, Conrad I. Karleen, New Methods Used in Plastic and Reconstructive Surgery.

## NEW MEXICO

**Clinical Society Lectures.**—The New Mexico Clinical Society has arranged the following lectures. At the February 25 meeting at the Veterans Administration Facility, Albuquerque, Dr. Hans Selye, Montreal, Canada, will lecture on "Hypertension as a Disease of Adaptation"; Dr. Maxwell M. Wintrobe, Salt Lake City, will present the March lecture; in May, Dr. Armand J. Quick, Milwaukee, will lecture on "The Hemorrhagic Diseases."

## NEW YORK

**Heart Disease Day.**—The local representative of the American Heart Association, the Rheumatic Fever and Heart Committee of the Tuberculosis and Health Association of Rochester and Monroe County, in cooperation with the Monroe County Medical Society, is planning teaching day for physicians on heart disease March 23 at the Rochester Academy of Medicine. All doctors and medical students are invited to attend free of charge. The program will close at 5 p. m. so that out-of-town doctors will be able to return home that night if they choose.

**Annual Clinical Day at Niagara Falls.**—The Third Annual Clinical Day of the Academy of Medicine of Niagara Falls will be held March 5 at the Hotel Niagara beginning at 9:30 a. m. The program is as follows:

Harry Gold, New York, Management of the Failing Heart.
J. Ernest Ayre, Montreal, Canada, Role of the Cervical Smear in General Medical Practice.
Louis J. Bailey, Detroit, Use and Abuse of Sex Steroids.
Lewis M. Hurxthal, Boston, Diagnosis of Angina Pectoris.
Edward L. Compere, Chicago, Low Back Pain.

**Postgraduate Lectures.**—The Medical Society of the State of New York with the cooperation of the New York State Department of Health has arranged postgraduate instruction for the Tompkins County Medical Society February 21 at 8:30 p. m. in Moore Hall, Cornell University Veterinary College, Ithaca. Dr. George P. Heckel, Rochester, will speak on "The Practical Applications of Endocrines in Gynecology." For the Queens County Medical Society a lecture has been arranged at the Society Building in Forest Hills March 11 at 4 p. m. when Dr. Charles L. Fox Jr., New York, will speak on "Plasma Therapy." The Oswego County Medical Society will hear Dr. Walter F. Rogers Jr., Syracuse, speak on "Thyroid Physiology and the Treatment of Thyrotoxicosis" February 22, 8:30 p. m. at the Fortnightly Club, Oswego.

## New York City

**Special Meeting at the Academy.**—The New York Institute of Clinical Oral Pathology will hear Dr. Charles F. Geschickter, Washington, D. C., speak on "Dental and Osseous Tumors of the Jaws" at the monthly conference February 28 at the New York Academy of Medicine at 9 p. m.

**Ward Teaching Program.**—City Hospital, Welfare Island, announces a practical ward teaching program under the direction of Dr. Carl Reich, attending physician, to be given February 1-May 1. Twenty-four staff members will take part in the teaching. The program is free to members of the medical profession. Inquiries may be made in the board room at the hospital.

**Cornell Alumni Day.**—Cornell University Medical College will have a scientific program on Alumni Day, March 24, as follows:

S. Bernard Wortis, New York, Medical Mission to Poland—1948.
Irvine H. Page, Cleveland, The Nature of Arterial Hypertension.
Thomas H. Ham, Boston, Diagnosis and Mechanism of Hemolytic Anemias.
William S. McCann, Rochester, N. Y., Some Neglected Aspects of Cardiology.

**Appoint Professor of Obstetrics and Gynecology.**—Dr. Robert G. Douglas has been appointed professor of obstetrics and gynecology at Cornell University Medical College and obstetrician and gynecologist in chief to New York Hospital, effective July 1, succeeding the late Dr. Henricus J. Stander. Dr. Douglas received his medical degree from McGill University, Montreal, 1924. After study at the University of Rochester School of Medicine and in several European clinics he has held various positions at the New York Hospital-Cornell Medical Center.

**Tuberculosis Society Election.**—Dr. Donald B. Armstrong, New York, was elected president of the New York Tuberculosis and Health Association, Inc., at the annual meeting January 25, succeeding Dr. Kendall Emerson. Dr. Armstrong, who is in charge of the Metropolitan Life Insurance Company's nursing, health educational and welfare program, has been active in tuberculosis control since 1916, when he began the "Framingham Tuberculosis and Health Experiment." He has been a member of the board of directors of the New York Tuberculosis and Health Association for sixteen years and prior to election as president was chairman of the executive committee. Other officers elected were Myron I. Borg Jr., secretary, and Harry P. Davison, treasurer.

## NORTH CAROLINA

**Fellowships in Medicine.**—On July 1 Duke University School of Medicine will have available several two year fellowships with stipends of $2,400 the first year and $3,000 the second year. Only those who have completed three years training in internal medicine, or a satisfactory equivalent, will be eligible for these positions, which are designed to prepare the candidate for the practice of internal medicine. The following places will be available: hematology and allergy, pulmonary diseases, gastroenterology, hypertensive cardiovascular and renal diseases, metabolic diseases, cardiology, general internal medicine and therapeutics. For information address Dr. Eugene A. Stead Jr., Duke University School of Medicine, Durham.

## OKLAHOMA

**Society News.**—Dr. Warren O. Nelson, professor of anatomy at the State University of Iowa College of Medicine, Iowa City, will speak at the regular meeting of the Tulsa County Medical Society February 21 at 8 p. m. on "Testicular Disfunction."

**Blood Center at Tulsa.**—The Tulsa County Blood Center opened in the community welfare building January 11 under the sponsorship of the local chapter of the American Red Cross and the Tulsa County Medical Society. It will serve patients in all of Tulsa's seven hospitals. Under a contract entered into between the center and the participating hospitals the patient pays only a single charge of $10 per pint of blood, which covers hospital laboratory service. The Red Cross has organized a recruitment program. Dr. Mabel M. Hart, former city schools physician, will be director of the center.

## OREGON

**Special Society Meeting.**—The Oregon State Society of Anesthesiologists will hold its regular monthly meeting in the University of Oregon Medical School Library March 9 at 8 p. m. A paper on "Use of a Disposable Polyethylene Tubing for Continuous Spinal Analgesia" will be read by Dr. David C. Boals of the Veterans Administration Facility in Portland. All interested physicians are invited to attend.

## SOUTH DAKOTA

**Dr. Hohf Awarded First Fifty-Year Pin.**—Dr. Silas M. Hohf, Yankton, has been awarded the South Dakota State Medical Association's first fifty-year practitioner pin, thus making him the only member of the Fifty-Year Club at the present time. In the state are other eligible physicians who will receive awards during 1949. Dr. Hohf received his M.D. degree in 1897 at the Illinois Medical College. He began practice in Yankton in 1897 and has been serving there for fifty-one years with interruptions for service in World War I and postgraduate training. For fourteen years he was in the surgery department of the University of South Dakota School of Medical Sciences, Vermillion, terminating that affiliation in 1929.

## VIRGINIA

**Seminar on Immunity and Allergy.**—In connection with the Stuart McGuire Lectures a Seminar on Immunity and Allergy will be given at the Medical College of Virginia, Richmond, March 17-18. Among the speakers will be:

William C. Spain, New York, Hay Fever.
Horace S. Baldwin, New York, Treatment with Special Reference to Intractable Asthma.
Wingate M. Johnson, Winston-Salem, N. C., Allergy in Relation to Medicine as a Whole.
Harry L. Alexander, St. Louis, The Stuart McGuire Lecture I, The Changing Concept of Allergy, Underlying Mechanisms.
Robert Chobot, New York, Management of the Asthmatic Child.
Walter L. Winkenwerder, Baltimore, Urticaria and Angioneurotic Edema.
Oscar Swineford Jr., Charlottesville, Va., Role of Infection in Allergy.

In the second Stuart McGuire Lecture Dr. Alexander will consider "Changing Concept of Allergy, Clinical Examples."

## WASHINGTON

**Society Aims to Modernize Commitment Law.**—The Washington Society for Mental Hygiene is introducing a bill in the state legislature to bring the legal provisions of the state law into line with the progressive thinking of modern psychiatry. Washington's commitment law relating to psychiatric care in state institutions allows only for taking care of those determined as "insane" and "feeble-minded" by court order. The law would make possible voluntary and preventive commitments for diagnosis and study as well. Among other things, the bill provides for psychiatric help rather than punishment for drug and alcoholic addicts, sexual psychopaths and psychopathic delinquents.

## WEST VIRGINIA

**State Association Acts to Promote Voluntary Sickness Insurance.**—The public relations committee of the West Virginia State Medical Association has inaugurated a program to carry to the people of this state a direct campaign designed to prove that voluntary sickness insurance is preferable to any form of compulsory health insurance. The program for a statewide public relations campaign, which got under way forty-eight hours after the council approved the project, will be broadened in scope when committees have been set up by the various component societies. In a letter mailed the middle of January to the secretary of each component society, the new committee asks for the appointment of a public relations committee composed of one tenth of the members. Each will be asked to get in touch with ten other members, so that practically all doctors in organized medicine may participate in the program. The doctors will then be asked to explain the campaign to at least twenty of their friends, lay and professional groups, that an educational campaign is being sponsored by the state medical association to fight socialized medicine. Each society is asked to set up a speakers' bureau and to provide speakers for professional and lay groups. The expenses for the educational and public relations program will be financed from voluntary contributions of $25 per member, which the council has asked all members of the state medical association to pay in addition to the American Medical Association assessment of $25.

## WISCONSIN

**Dr. Haessler Appointed Professor of Ophthalmology.**—Through an anonymous benefactor, Marquette University, Milwaukee, has established the first full time clinical professorship in its School of Medicine, the chair of ophthalmology. Dr. F. Herbert Haessler, Milwaukee, has retired from private practice to accept the professorship. He will manage the eye clinic and dispensary, which have been a part of the medical school for twenty-five years, teach medical students and eventually develop a training program for young men who are interested in becoming eye specialists. It was specified by the benefactor that the chair be established as a memorial to the late Dr. John L. Yates, Milwaukee surgeon and Marquette faculty member, and his sister, the late Mrs. Carol M. Allis.

## GENERAL

**Multiple Sclerosis Society Changes Address.**—The National Multiple Sclerosis Society has announced the removal of its offices to 270 Park Avenue, Suite 7G, New York 17.

**Southern Surgeons Club.**—The annual meeting of the Southern Surgeons Club will be held at the Duke University School of Medicine and Duke Hospital, Durham, N. C., March 14-15. Included in the program is an address by Dr. Michael E. DeBakey, Houston, Texas. Members of the university staff will present papers Monday afternoon and Tuesday morning.

**Meeting of Otorhinologic Society.**—The American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery will hold a stated meeting February 24 at the Hotel Waldorf-Astoria, New York. Speakers at the scientific session at 8 p. m. will be:

Max L. Som, New York, Plastic Closure of Pharyngostomy Following Laryngectomy.

George A. Friedman, New York, The Traumatic Face.

William A. McNichols, Dixon, Ill., Complicated Fractures of the Maxilla.

**Influenza and Measles.**—According to the U. S. Public Health Service, the total number of influenza cases reported in the first four weeks of this year was 63 per cent below the corresponding total for 1948 (which was also the median for the five years 1944-1948). The total number of reported cases of measles in the first four weeks of the year is about 15,041, the largest number reported for the corresponding period since 1938.

**Meeting to Honor Professor Forbes.**—The Eastern Association of Electroencephalographers will hold a testimonial meeting in honor of Dr. Alexander Forbes, professor of physiology, Harvard University, February 19-20 in the Building C Amphitheater, Harvard Medical School, Boston. The address opening the scientific session will be given by Dr. Hallowell Davis, St. Louis. A dinner will be given in honor of Dr. Forbes at 7 p. m. Saturday at the Hotel Continental, Cambridge. He has served on the staff of Harvard University since 1912.

**Heart Association Drive for Five Million Dollars.**—The American Heart Association opened its nationwide drive for $5,000,000 to combat heart disease February 7 and will continue the campaign to February 28. The organization includes thirty-eight affiliated local heart associations and campaign committees in 505 communities throughout the country. The major portion of the funds collected this year will be used for research and for the development of local heart associations to provide community cardiac services. Founded by leading heart specialists as a scientific society in 1922, the American Heart Association was reorganized in 1947 to admit lay members to its governing bodies. It is today the only national voluntary health agency devoted exclusively to combating diseases of the heart and circulation.

**Accident Toll for 1948.**—The National Safety Council, Chicago, reports that 98,000 persons were killed in accidents during 1948 and 10,300,000 were injured at an economic loss of $7,200,000,000. Home accidents again led the list as the nation's number 1 accident killer. The 1948 toll was 2 per cent below 1947; while all accident classifications except home showed decreases, the over-all decrease was due principally to the sharp drop in public accidents other than motor vehicle, notably drowning and disaster tolls. This decline in public deaths plus the reduction in motor fatalities, which was numerically modest but large in relation to soaring travel miles, were the brightest spots in the accident picture. Deaths from accidents in 1948 as compared to 1947 were as follows:

| | 1948 | 1947 | Change, Percentage |
|---|---|---|---|
| All accidents | 98,000 | 99,579 | —2 |
| Motor vehicle | 32,000 | 32,697 | —2 |
| Home (civilian) | 34,500 | 34,000 | +1 |
| Occupational (civilian) | 16,500 | 17,000 | —3 |
| Public (civilian, not motor vehicle) | 16,500 | 17,500 | —6 |
| Military personnel | 1,200 | 1,300 | —8 |

In 1948 the all-accident death rate was 67.1 per hundred thousand population, the lowest rate since the previous low of 68.4 in 1921.

Falls caused the death of 27,000 persons, a 3 per cent increase over 1947; deaths from burns 8,400, a 1 per cent increase; drownings 6,900, 7 per cent under 1947; firearms 2,300, representing an 8 per cent drop. Catastrophes in which the toll was at least 5 lives totaled 1,100, according to the Metropolitan Life Insurance Company, as compared with 2,100 in 1947. One catastrophe in 1940 caused as many as 50 deaths, the Oregon-Washington flood. Five others that caused between 25 and 50 deaths were three airplane crashes, the Illinois tornado and a swamped launch.

Vehicle milage in 1948 is estimated at 7 per cent above 1947. The death rate per 100,000,000 vehicle-miles was estimated on the basis of preliminary data at 8.1—the lowest rate on record. Among the forty-five states which have reported complete motor vehicle death tolls for the year, Rhode Island led the twenty-two states reporting decreases over 1947, with a decrease of 41 per cent. Among the cities with 200,000 population, Syracuse, N. Y., had the largest reduction in fatalities, 46 per cent below 1947. Richmond, Va., was second and Los Angeles was third.

Disabling injuries from home accidents numbered 5,200,000, and the resulting wage loss, medical expense and overhead costs of insurance totaled $700,000,000. Nearly all increase occurred among persons 65 years and older. Occupational accidents totaling 16,500 caused 3 per cent fewer deaths than in 1947, although the total all-industry employment increased about 2.5 per cent. Disabling injuries from work accidents numbered about 1,950,000. The economic loss from occupational accidents was about $2,600,000,000. Coal mine deaths in the first eleven months of the year dropped to 916, 12 per cent below last year's figure. Railroad employee fatalities were 425 in the first nine months, a decrease of 21 per cent, and likewise injuries in the nine months dropped 13 per cent to a total of 23,486. Deaths to workers from all accident causes totaled 48,000—16,500 on the job and 31,500 off the job, a decrease of 2 per cent from 1947. Injuries numbered about 4,550,000, representing a total time loss of 410,000,000 man-days. Five fatal accidents occurred in the domestic passenger-carrying operations of scheduled air transportation during the year, with a death toll of 98, including 83 passengers and 15 crew members. Passenger death rate per 100,000,000 passenger-miles based on preliminary information was 1.4 compared with 3.2 for 1947. Railroad accidents during the first nine months showed a death toll of 2,762, a 12 per cent decrease from 1947, with passenger deaths showing a 40 per cent drop to 35. Trespasser deaths numbered 1,209, a decrease of 16 per cent from 1947. The estimated accident death toll for military personnel for 1948 was 1,200, an 8 per cent drop from 1947.

## CORRECTIONS

**Personal.**—In The Journal, January 29, page 317, the name of Dr. Frank L. Rector of Evanston should be changed to Lieutenant Edgar M. Rector of Portland, Ore., who was a recipient of the Navy Cross Medal for his service as medical officer with the infantry battalion in the Saipan and Tinian engagements in the recent war.

**Society Election.**—The American Academy of Dermatology and Syphilology meeting in Chicago in December retained Dr. Earl D. Osborne, Buffalo, N. Y., as secretary-treasurer and did not elect Dr. Louis A. Brunsting to the office as was stated in The Journal, January 29, page 320. Dr. Brunsting is secretary of the American Dermatological Association.

**Bladder Stone.**—In the Query and Minor Note with this title in The Journal, January 29, page 346, the second sentence in the answer reads: The female urethra is capable of wide dilation but normally can only be stretched to 35 F, which would be 105 mm. in diameter. The 105 mm. should have been 11.6 mm.

## Marriages

Lewis William Wannamaker, St. Matthews, S. C., to Miss Hallie Walker Etheridge of Whitakers, N. C., September 11.

Keith Millner Oliver to Dr. Priscilla Lowell Foote, both of Purcellville, Va., at Durham, N. C., September 4.

James Arthur Williams, Indianola, Miss., to Dr. Rowena Jean Romer of San Francisco, in December.

William Clayton Barr, Virginia Beach, Va., to Miss Ivee Elizabeth White of Richmond, September 11.

William Rhea Bond, Beckley, W. Va., to Miss Veronica Valerie Scearce of Richmond, November 13.

John Hays Sharp, Columbus, Ohio, to Miss Beverly Jane Brock in Alliance, recently.

James F. Houghton, Jersey City, N. J., to Miss Jeanne Bull at Westfield, January 29.

Albert Sternbach to Miss Jacqueline Oppenheim, both of New York, December 5.

Alvin Sherwood Medoff, Brooklyn, to Miss Rita Katz of New York, December 9.

# Deaths

**Oliver Wendell Holmes Mitchell** ⊕ Syracuse, N. Y.; born in Lancaster, Mo., Aug. 17, 1886; University of Missouri School of Medicine, Columbia, 1908; associate professor of bacteriology and pathology at his alma mater prior to 1914, when he joined Syracuse University College of Medicine as associate professor of bacteriology and public health, subsequently becoming professor of bacteriology, hygiene and sanitation, and later professor of bacteriology and public health; member of the House of Delegates of the American Medical Association from 1943 to 1948; past president of the Syracuse Academy of Medicine and of the Onondaga County Medical Society; served for a long period on the New York State Medical Society Council Committee on Public Health and Education and in 1938 became chairman of the committee and director of the society's postgraduate medical education program; in this capacity he worked closely with the New York State Health Department; served on advisory committees to the state health department and at the time of his death was on the department's advisory committee on rheumatic fever; from 1914 to 1918 served as city bacteriologist and in 1922, commissioner of health; member of the American Association of Pathologists and Bacteriologists and the Society of American Bacteriologists; affiliated with the Hospital of the Good Shepherd, Syracuse Memorial and St. Joseph's hospitals; died December 20, aged 62, of coronary thrombosis.

**Clinton Kitto Smith** ⊕ Kansas City, Mo.; born in Dunlap, Iowa, April 17, 1883; University of Colorado School of Medicine, Denver, 1907; an Associate Fellow of the American Medical Association; member of the American Urological Association; past president of the Southwestern Branch of the American Urological Association; specialist certified by the American Board of Urology; served on the faculty of the University of Kansas School of Medicine, Kansas City, Kan.; an officer during World War I; affiliated with Children's Mercy and Kansas City General hospitals; consulting surgeon at the Ellis Fischel State Cancer Hospital in Columbia; formerly editor of the *Jackson County Medical Society Weekly Bulletin;* died in Johnson County, Kan., November 21, aged 65, of carcinoma of the prostate.

**Ernest Milton Watson** ⊕ Buffalo; born in Warwick, R. I., in 1884; Johns Hopkins University School of Medicine, Baltimore, 1913; professor of urology at the University of Buffalo School of Medicine; specialist certified by the American Board of Urology, Inc.; formerly associated with the U. S. Public Health Service; member of the American Urological Association; past president of the Central Section of the American Urological Association; fellow of the American College of Surgeons; affiliated with Children's Hospital, Edward J. Meyer Memorial Hospital, U. S. Marine Hospital, State Institute for Malignant Diseases and Buffalo General Hospital, where he died December 5, aged 63, of massive cerebral hemorrhage due to cerebral arteriosclerosis.

**Herman William Hundling** ⊕ Little Rock, Ark.; State University of Iowa College of Medicine, Iowa City, 1915; at one time a fellow in surgery at the Mayo Foundation in Rochester, Minn.; a captain in the American Expeditionary Forces in France during World War I; fellow of the American College of Surgeons; member of the founders group of the American Board of Surgery; associate professor of surgery at the University of Arkansas School of Medicine; affiliated with Missouri Pacific Hospital, St. Vincent Infirmary, Arkansas Children's Home and Hospital and Baptist State Hospital; died January 8, aged 57.

**George Jacob Kastlin** ⊕ Pittsburgh; University of Pennsylvania School of Medicine, Philadelphia, 1924; assistant professor of medicine at the University of Pittsburgh School of Medicine; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the American Association of Pathologists and Bacteriologists and the American Society of Clinical Pathologists; served during World War II; medical director of the Skin and Cancer Foundation; affiliated with Montefiore and St. John's General hospitals; died in Presbyterian Hospital December 31, aged 48.

**Nathaniel Emmons Paine,** Newton, Mass.; born in New Hartford, N. Y., in 1853; Albany (N. Y.) Medical College, 1875; professor emeritus of psychiatry at the Boston University School of Medicine; fellow of the American College of Physicians; member of the American Psychiatric Association and the American Medical Association; served as trustee and chairman of the board, Westboro (Mass.) State Hospital; affiliated with Massachusetts Memorial Hospital in Boston and Newton Hospital; formerly vice president of the West Newton Savings Bank; died in Walpole, November 30, aged 95, of duodenal ulcer and cervical and lumbar spinal arthritis.

**Harry Sherwood Allen** ⊕ Ironton, Ohio; Miami Medical College, Cincinnati, 1895; past president and secretary of the Lawrence County Medical Society; for many years city health commissioner; died in the Lawrence County General Hospital recently, aged 75, of heart disease.

**Alice Gates Bugbee,** Milford, Conn.; Cornell University Medical College, New York, 1903; member of the American Medical Association and of the Medical Society of the State of New York; died December 5, aged 78, of coronary heart disease.

**Frederick Joseph Cicotte,** Chicago; Loyola University School of Medicine, Chicago, 1916; member of the American Medical Association; died Feb. 19, 1948, aged 67, of coronary thrombosis.

**Eugene Edward Lamoureux,** Wethersfield, Conn.; Tufts College Medical School, Boston, 1935; member of the American Medical Association; director of the bureau of preventable diseases and formerly epidemiologist of the Connecticut State Department of Health; died November 22, aged 41, of coronary thrombosis.

**James Percy McAnulty,** San Angelo, Texas; University of Texas School of Medicine, Galveston, 1911; fellow of the American College of Surgeons; served during World War I; during World War II served as examining physician of Tom Green County Selective Service Board No. 1; one of the founders of the San Angelo Medical and Surgical Clinic; served on the medical board and as chief of obstetrics and pediatrics at the Shannon West Texas Memorial Hospital, where he died November 12, aged 61, of coronary heart disease.

**Angus Dugald Macintyre,** Spokane, Wash.; Queen's University Faculty of Medicine, Kingston, Ontario, Canada, 1901; F.R.C.S., Edinburgh, Scotland, 1909; member of the American Medical Association; served as a captain in the Canadian Army during World War I; died in Sacred Heart Hospital October 11, aged 71, of pulmonary embolism and cerebral embolism.

**Ransom Andrew Nockton Jr.,** Crowley, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1938; served overseas in the medical corps of the U. S. Naval Reserve during World War II; died November 30, aged 34, of burns received in a fire of undetermined origin.

**Glen DeWitt Sheets,** Williamsport, Ohio; Ohio State University College of Medicine, Columbus, 1920; past president and vice president of the Pickaway County Medical Society; served during World War I; died in Circleville October 17, aged 55, of coronary thrombosis.

**Joseph L. Soldinger,** Chicago; Loyola University School of Medicine, Chicago, 1916; member of the American Medical Association; died in the Norwegian American Hospital December 19, aged 53.

**Adelbert Elmer Torrens,** West View, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1902; member of the American Medical Association; served during World War I; affiliated with Allegheny General Hospital in Pittsburgh; died November 13, aged 74, of cardiovascular renal disease.

**Thomas Turnbull Jr.** ⊕ Pittsburgh; University of Pennsylvania Department of Medicine, Philadelphia, 1887; an Associate Fellow of the American Medical Association; died in Emergency Hospital, Washington, D. C., December 23, aged 83, of cardiorespiratory failure.

**Harry Ellsworth Wilson,** Centralia, Ill.; Keokuk (Ia.) Medical College, College of Physicians and Surgeons, 1901; member of the American Medical Association; died in St. Mary's Hospital November 13, aged 76, of coronary occlusion, cholelithiasis and prostatic hypertrophy.

**John Mayer Wilson** ⊕ Mobile, Ala.; University of Alabama School of Medicine, University, 1907; member of the International College of Surgeons; fellow of the American College of Surgeons; affiliated with Providence Hospital; died in New Orleans November 12, aged 64, of coronary occlusion.

**Ernest George Wollenweber,** Los Angeles; Keokuk (Ia.) Medical College, College of Physicians and Surgeons, 1904; formerly on the staffs of St. Joseph's and Graham hospitals in Keokuk; died October 17, aged 70, of cerebral hemorrhage.

**James R. Womack,** Houston, Mo.; Northwestern Medical College, St. Joseph, 1893, member of the American Medical Association; served in the state legislature and as county coroner; died in the Barnes Hospital, St. Louis, November 8, aged 80.

# Foreign Letters

## LONDON

*(From Our Regular Correspondent)*

Jan. 8, 1949.

### Gastroscopy

At the Medical Society of London an important discussion took place on gastroscopy. Dr. Avery Jones said that modern gastroscopy dated from the development of the Wolf-Schindler instrument in Germany, which was introduced to this country in 1934. It had been remarkably improved by Mr. Hermon Taylor. Examination was done mostly with patient under local anesthesia, though it could be done with him under general. With morphine or hyoscine premedication discomfort was minimal. The Hermon Taylor instrument gave much better definition with untoward reaction in only 1 in 700 cases. The advantage of gastroscopy was increased accuracy of diagnosis. It was a valuable supplement to roentgen rays. It might more frequently demonstrate a gastric ulcer. Sometimes it would show a healed ulcer, or it might reveal a diverticulum. It gave a more accurate prognosis of healed ulcer than the roentgenogram.

Mr. Hermon Taylor said that in 1939 he demonstrated an adaptation of the Wolf-Schindler instrument which allowed it to be bent forward at will and enabled a near or distant view of the mucosa to be obtained. It could be flexed round so as to afford a view of a pyloric tumor. The gastroscope had brought a new accuracy to the study of gastric conditions. Previously the diagnosis in roentgenologically negative cases was largely a matter of opinion based on the test meal, the examination of the stools for blood and the clinical history, with the result that all the cases came to be lumped together as "gastritis." The gastroscope exploded this conception of universal gastritis to explain otherwise undiagnosed dyspepsias. Gastritis should be redefined; it is an inflammation of the mucous membrane recognizable by edema, loss of translucency, petechiae, excessive mucus or mucopus and perhaps erosion. An unusual pattern or irregularity at the pylorus might simulate carcinoma, and the gastroscope would help to elucidate this problem. Some authorities maintain that all gastric ulcers should be excised because 10 per cent became malignant. But if the gastroscope is used and the healing of the ulcer is watched there is no question of missing any malignant change. But examination with the gastroscope is not to be lightly undertaken. Mistakes and accidents do occur. The commonest mistake, which Mr. Taylor said he had made many times himself, is diagnosing malignant changes in an ulcer on one gastroscopic examination.

### The Pulheems System of Medical Classification

In 1943 the Canadian Army adopted a new system of medical classification, for which the chief credit is due to Major General Brock-Chisholm. It provided for the first time a concise method of expressing the physical and mental capacities of a person and was so successful that it has been adopted by the British fighting services and the Ministry of Labor. The examination is carried out in seven subdivisions, called qualities, and from the initial letters of these the name Pulheems is derived. They are P, physical capacity; U, upper limbs; L, locomotion; H, hearing; EE, eyesight; M, mental capacity, and S, stability (emotional). The duplication of E is due to noting separately visual standard of each eye. The letter R is inserted after the other letters to show that the condition noted is remediable. There are 8 degrees under each quality.

The medical assessment of any man under the system is based on functional efficiency at the conclusion of training. The code number provides a complete indication of the fitness, physical and mental, of the man for employment under varying conditions. The code number can be reduced to a simple two letter code for administrative application, as has already been done in the Army. Thus we have the following: FE, employable on full combatant duties in any part of the world (FE, forward everywhere); FT, employable on full combatant duties in any area in temperate climates (FT, forward temperate); LE, normally employable in the lines of communication or base area, but may be employed in the forward area in any role which is not primarily a fighting one; LT, normally employable in lines of communication in temperate climates only; BE, employable only in the base area in any part of the world (BE, base everywhere); BT, employable only in the base area in temperate climates; HO, employable in the protected area in the United Kingdom only (HO, home only).

### Stricter Control of Dangerous Drugs

The problem of the control of dangerous drugs has recently received attention, in consequence of anxieties expressed by the international authority which administers the narcotic control conventions, the Permanent Central Opium Board. Two new British requirements are that persons authorized to be in possession of dangerous drugs must take proper care of them, and authorized sellers of poisons must keep stocks under lock and key. Pharmacists have the responsibility imposed on them of satisfying themselves of the genuineness of all prescriptions for a dangerous drug.

Drug addiction is not a serious problem in Britain. The latest figures show that addicts number about 383, all of whom obtain their supplies by prescription. The principal drugs of addiction are morphine and heroin. Few take cocaine, and their number is decreasing. The manufacture of dangerous drugs is controlled by a system of licensing and supervision. According to the government report the addict or would-be trafficker has little chance of obtaining dangerous drugs and the possibility of organized traffic with Indian help is discounted.

## OSLO

*(From Our Regular Correspondent)*

Jan. 16, 1949.

### The Achievements of BCG Vaccination

The tuberculosis department of the Oslo Public Health Service has for many years carried out BCG vaccination on carefully planned lines in order that, by strict roentgenologic and tuberculin control, its merits may be gaged by scientific standards. Dr. Gerhard Hertzberg, who is on the staff of the tuberculosis department, has just published an exhaustive study of BCG vaccination carried out in the period 1932-1946. His 224 page book, published in English with the above title by Johan Grundt-Tanum (price 15 kroner) deals with the more than 18,000 persons vaccinated with BCG in the period under review. Conscious of the many statistical pitfalls awaiting him, he has secured the assistance of Miss Julie Backer, Ph.D., who is the departmental chief of the Central Statistical Bureau.

The most original and perhaps the most interesting feature of this study concerns the tuberculin reactions (Pirquet and Mantoux) following BCG vaccination. Dr. Hertzberg has learned to distinguish between the comparatively mild tuberculin reaction to BCG vaccination and the more violent tuberculin reaction to a superimposed accidental infection with virulent tubercle bacilli of the human type. These two reactions differ in several respects which are familiar to the staff of the tuberculosis department. But Dr. Hertzberg has concentrated attention on the measurement in millimeters of the reactions as being the most objective criterion, and he emphasizes the practical importance of distinguishing between the two. His final conclusion that BCG vaccination is harmless and also affords considerable protection against tuberculosis should do much to promote the more extensive employment of this measure.

### Red Blood Cell Diameters in Liver Diseases

Dr. Gerhard Larsen's M.D. thesis, published with the foregoing title at the end of 1948, is the outcome of an investigation lasting from the beginning of 1943 to October 1946. As he points out, several observers have already remarked on an increase in the mean diameter of the erythocytes in diseases of the liver. But there is no agreement over the frequency and causes of this phenomenon. Dr. Larsen has evolved a certain technic in the measurement of the erythrocytes, and he has followed the changes in their diameters in a number of patients throughout the course of their hepatic diseases. The diseases studied were acute hepatitis (26 cases), chronic hepatitis (32 cases) and cholecystitis or cholelithiasis (14 cases). In all the cases of damage to the cells of the liver, the diameter of the erythrocytes was found to be increased while the mean corpuscular volume remained the same. A comparison of these cases with cases of pernicious anemia suggested that there is a fundamental difference in the blood cell population in the two groups. But when patients with pernicious anemia were treated with liver extract, the blood cell population was indistinguishable from that of hepatitis. Dr. Larsen argues that the disturbances in the blood observed in hepatitis as well as in pernicious anemia are due to a disordered maturation of the precursors of the erythrocytes in the bone marrow. Some tentative experiments suggest that nicotinic acid plays a part in this process.

This study is also an instructive sign of the times, and it is indicative of a shift of emphasis in medicine for which the mathematician-statistician is responsible. The biologist of yesterday, happy in his ignorance of all but the elements of statistics, must read with mixed emotions this study which is so freely seasoned with mathematical formulas. His choice lies between exercising blind faith in what these formulas are supposed to show and going to school once more to learn this new science. Only a generation ago he would have made his choice (neither of the two!) with a contemptuous reference to statistics as the last word in mendacity. Today he has an uneasy feeling that men of the Dr. Larsen school are better equipped than himself for getting to the heart of scientific problems. "The old order changeth. . . ."

### Professor Olav Hanssen Retires

Having reached the age limit, Professor Olav Hanssen retired at the end of 1948 from his post as professor of medicine at the University of Oslo and as head of Department A of the Rikshospital. His valedictory address, delivered on December 11 in the packed lecture hall of the hospital, was a summary of, and commentary on, his philosophy of life. For twenty-five years he has taught this philosophy in the lecture hall and practiced it in his wards. As a lecturer, he has held his audience spell bound by his well disciplined histrionic gifts, with the aid of which he has driven home much practical wisdom. As a clinician in the wards he has taught his students to listen, silently and patiently, to what the patient himself has to say. Alert and quizzical, he has been a potent antidote to bumptiousness in his juniors. These are but a few of the reasons why this great little man, with quick, peremptory movements, has endeared himself to his patients and commanded the affection and respect of his students and nurses. At the end of his valedictory address he was given an enthusiastic ovation by his colleagues, and on the same day his recently painted portrait was unveiled in the Rikshospital. His successor is Professor Paul A. Owren, whose work on a new clotting factor in the coagulation of the blood has already given him an international reputation. The post of second in command in Department A of the Rikshospital has been awarded to Dr. Gerhard Larsen, whose recent M.D. thesis on the distribution of red blood cell diameters in hepatic diseases deserves special notice.

## THE NETHERLANDS

*(From Our Regular Correspondent)*

AMSTERDAM, Dec. 25, 1948.

### Eradication of Malaria in Holland

Formerly Holland stood on record as an unhealthy country. Maybe records exaggerated; nevertheless, things happened there which would not have been out of place in tropical countries but were very much so in Northwestern Europe. The Salsburg settlers, driven from their Austrian home to perish in the Zealand swamps, offer one example. The well known fate of the British Army in the isle of Walcheren is another. One may argue that the country was not so much to blame as faulty organization in settling immigrants and billeting troops in little known surroundings, but the country was blamed for it all the same. It was pronounced as unhealthy as Italy, and for the same reason: intermittent fevers. From 1845 onward they were called malarial fevers, and so the notion arose that Holland was highly malarious. Half a century later this was apparently confirmed by Schoo's diagnosing vivax malaria in hundreds of his patients. However, malarial fevers of former days were highly fatal; modern ones are not. For that reason doubt has arisen whether the old intermittent fevers were malaria in the modern sense of the word.

This doubt, however, does not detract from the fact that there is much malaria in this country, limited to the provinces with predominantly brackish water; in one of them only, the province of North Holland, it constitutes a health problem of some magnitude. Even there malaria is not a constant feature of the countryside; bad years are separated by long intervals of almost complete exemption from the disease. Korteweg and his successors, in the village of Wormerveer, recorded epidemic exacerbations round about 1880, 1901, 1922 and 1946. Similar ups and downs occur in other parts of the province.

Aquatic conditions being distinctly unfavorable to antilarval measures, sanitary authorities, since 1935, have concentrated on killing adult mosquitoes by spraying human habitations. They were justified in doing so by the excellent research work done by Professor Swellengrebel (Indian Institute, Amsterdam) and his co-workers on the habits of the main vector, Anopheles maculipennis atroparvus. Especially interesting was the finding of Swellengrebel and de Buck. They found these mosquitoes infected inside human habitations only (not in animal habitations), from the middle of August till the end of December; they acquire their infection no later than the end of October. As a rule, their bite causes no illness till after an incubation of six to nine months; i. e., from April till August, the usual term of the Dutch malarial season.

Accordingly, malaria control in Holland consists in killing infected Anopheles; i. e., in spraying the houses where they are likely to occur. These are the houses inhabited by parasite carriers, persons who had malaria in the current year or in one of the two preceding years.

From 1935 until 1946 pyrethrum was sprayed. This had to be repeated every fortnight from August till October, as in mosquitoes sporozoites mature in about fifteen days during the season of infection. With this method good results were obtained in villages but not in towns, because the method depends on an adequate selection of the houses to be sprayed; that is, on an accurate knowledge of malaria incidence, which is more difficult to obtain in towns than in villages.

With the support of the International Health Division of the Rockefeller Foundation DDT has replaced pyrethrum. Wolff and Kraan found its residual effect in Holland lasting for five months at the lowest estimate. Consequently, one spraying is carried out in July, well in advance of the transmission season; it easily covers that whole season. This simplification obviates the need of selecting the houses to be sprayed. Henceforward all human habitations are to be treated, and animal habitations as well.

The first year, 1947, showed satisfactory results: In the treated villages and towns malaria was practically stopped in 1948. It continued in untreated villages, although at a lower level than in 1947, the epidemic being on the wane.

DDT residual house spraying is to be extended over the whole of the province. It is confidently expected that it will eventually lead to the complete eradication of this nonfatal but nevertheless troublesome disease.

## Correspondence

### DESTRUCTIVE LESIONS OF THE NOSE

*To the Editor:*—In the Jan. 1, 1949 issue of The Journal, page 49, the Paris Letter deals with the treatment of leprosy. In the second paragraph, the writer mentions "erythematous lupus of the face, with a large excavation of the nose" and "an ulcerative erythematous lupus; the soft parts of the nose were destroyed."

These statements are misleading to those who are not versed in dermatology. The name erythematous lupus, or lupus erythematodes, as used here, should be "lupus vulgaris" or "tuberculosis lupoides." Destructive lesions of the tissues, especially of the nose, do not occur (except in extremely rare instances), in patients with lupus erythematosus. Destructive lesions of the nose, however, are common manifestations of lupus vulgaris, a tuberculosis of the tissues.

While it is to be assumed that the patients mentioned were suffering from destructive lesions caused by the tubercle bacillus, it should be borne in mind that destructive lesions of the nose may also be caused by numerous other diseases, such as syphilis, gangosa, rhinopharyngitis mutilans, blastomycosis, yaws and cancer.

Fred Wise, M.D., New York.

### CONTRACEPTIVE AGENTS

*To the Editor:*—I have been reading with great interest the excellent paper on contraceptive agents by Eastman and Seibels in The Journal, January 1.

In my former practice in Baden-Baden, Southern Germany, now in the French Zone (practice limited to obstetrics and gynecology), I recommended a simple contraceptive for indigent families, especially when the health of the mother was weak, when the number of living children was more than 4 or 5, and when the earning power of the husband was weakened also by sickness or by economic insecurity. I advised the patient to buy packages (dozen) of tampons of lamb's wool, suspended on a thread; I prescribed an ointment of 10 per cent boric acid and 1 per cent lactic acid and advised the patient to put a small portion of this ointment on the surface of the tampon, which was introduced before intercourse. This has the advantage that there is not great diminution of friction, which diminishes the sexual feelings for man and woman, and it is also less expensive. People with little education spill much jelly, when used in the form advised by Eastman and Seibel, and the expense is considerable. Also the occlusion of the cervix by the tampon of lamb's wool is more perfect than the occlusion by a pessary which often is dislocated. The introduction of a tampon is far easier than the introduction of a diaphragm. The tampon is removed with the thread after intercourse. The expense of the wool tampon is about 10 cents. The wool tampon is of course preferable to a tampon made of cotton, as it is elastic and does not collapse when moist.

Robert Kuhn, M.D., Friendsville, Tenn.

### HYPERHEPARINEMIA, WHITE EMBOLI AND LEUKERGY

*To the Editor:*—With reference to Alfred L. Copley's article, "Hemorrhagic Diathesis in Hiroshima," The Journal (137:145 [May 8] 1948), I should like to make the following suggestions:

1. In a number of experiments conducted in our laboratories at the beginning of 1948 I had definite evidence which convinced me that heparin in vitro and in vivo (even in doses smaller than needed for the prevention of blood coagulation) causes agglutination of thrombocytes—thus contradicting the opinion hold by most writers (Jorpes, Solandt and Best, Boyd, Whitby and Britton and others). I am glad that the findings of Copley and his co-workers are the same. Independently of the agglutination of thrombocytes, however, heparin causes also a clumping of the white blood cells, mainly granulocytes. It can be proved that this agglutination of leukocytes is independent of the presence of platelets, because it takes place also in the blood of an animal deprived of platelets by the use of antithrombocytic serum after Ledingham. The conglomerations disintegrate at the temperature 46 to 48 C; an excessive quantity of salt—e. g., 2 to 4 per cent sodium chloride—also breaks them up.

2. The same agglutination of thrombocytes and leukocytes takes place in peptone and anaphylactic shocks. This phenomenon could be explained by hyperheparinemia, which appears, according to Quick, Jaques and Waters, in such states.

3. The phenomenon, however, takes place also in pregnancy (in women from the fourth month of pregnancy to the third month post partum), after an injection of histamine, in febrile diseases, after an intravenous injection of killed bacteria, after foreign protein injections and after an intrapleural injection of turpentine in animals.

4. The white emboli described by Copley can be seen not only after heparin, but also, for example, after an injection of killed bacteria or peptone. I have made such observations on an auricle of the ear of a young mouse, a very proper object to this purpose. It may be that some observations described by M. H. Knisely, E. H. Bloch and his co-workers (Sludged Blood, *Science* 106:431, 1947) concern the same phenomenon.

5. To the described phenomenon of the agglomeration of leukocytes I have given (1942) the term "leukergy" (Current Comment, J. A. M. A. 135:578 [Nov. 1] 1947; *Lancet* 2:765 [Nov. 22] 1947), and I have described the test for detecting it in blood samples from veins or skin capillaries. An interesting feature of this phenomenon is the fact that the conglomerations reveal a tendency to cytologic homogeneity; i. e., some groups consist of granulocytes, other groups of lymphocytes, and so on. It seems reasonable to suppose that in the mechanism of leukergy specific serologic factors play some part (autoagglutinins or perhaps autoglutinins?), and also an unspecific increase in the leukocytes' and thrombocytes' stickiness, caused, perhaps, in all cases by heparin. Leukergy probably plays a part in the migration of leukocytes, has also an indirect role in phagocytosis and belongs, therefore, to the phenomena of inflammation and immunity. On the basis of our studies (*Polski Tygodnik lek.* 2:1329, 1947; *Texas Rep. Biol. & Med.* 5:156, 1947; *Ann. Univ. Curie-Sklodowska* (Section D) 1:335-349, 1946; ibid. 3:181-197, 1948) on this phenomenon the conclusion can be drawn that tests of leukergy and observations of its degree and also of the kind of conglomerated cells will be of clinical value.

Ludwik Fleck, M.D.,
Professor of Microbiology, Lublin, Poland.

# Medical Motion Pictures

## FILM REVIEWS

**The Institute of Rehabilitation and Physical Medicine.** 16 mm., color, sound, 800 feet (1 reel), showing time twenty minutes. Prepared in 1948 by Howard A. Rusk, M.D., Director of Institute; Donald A. Covalt, M.D., Clinical Director, and George G. Deaver, M.D., Professor of Clinical Rehabilitation, New York University, N. Y. Produced by Jacob Sarnoff, M.D., Brooklyn. Procurable on loan (service charge) from the New York University Film Library, 26 Washington Place, New York, or on purchase from the Institute of Rehabilitation and Physical Medicine, 325 East Thirty-Eighth Street, New York 16.

This film describes the work of the institute and illustrates the many types of seriously disabled persons undergoing rehabilitation. Training in ambulation is stressed, and 2 young women with complete paralysis of the lower extremities are shown. The views of the prosthetic appliances center, the experimental kitchen for the disabled housewife and the department of physical medicine are of interest. A message of hope is conveyed to the rehabilitation of paraplegics, hemiplegics, quadriplegics and also patients with advanced poliomyelitis, cerebral palsy, arthritis and injuries of the peripheral nerves.

The picture does bring to the attention of the medical profession the development of this new and important institute, which attempts to achieve the maximal function and adjustment of the individual by preparing him physically, mentally, socially and vocationally for the fullest possible life compatible with his abilities and disabilities. This film is worthy of consideration and should be seen by all persons interested in the rehabilitation of disabled persons.

Unfortunately the photography is amateurish. In many of the scenes the camera has been "hand held," there is much "panning" (swinging of the camera from side to side) and poor lighting, considerable shaking of the picture and much swinging to unimportant detail are apparent. Despite the unfortunate inferiority of parts of the photography, the script is good and the narration is excellent.

**Anesthesia.** 16 mm., color, silent, 400 feet, showing time fifteen minutes. Prepared and produced in 1947 by Wallace M. Shaw, M.D., with the cooperation of E. A. Rovenstine, M.D., and E. M. Papper, M.D., Corona, N. Y. Procurable on loan or purchase from: The American Society of Anesthesiologists, 745 Fifth Avenue, New York.

This motion picture depicts the present day scope of anesthesia, and its basic aim is building up the specialty of anesthesiology. It has a sense of drama without being maudlin, and the story of the duties of the anesthesiologist unfolds with smoothness and drama.

The film is excellent and is suitable for administrative groups in hospitals, premedical students and beginning medical students, staff and student nurses and some lay groups. If it could be lengthened to include more data it could be used for teaching senior medical students and anesthetists. The photography is fairly good, though the picture is obviously a home-made production.

## NEW MOTION PICTURE ADDED TO A. M. A. MOTION PICTURE LIBRARY

**Examination of the Breast for Early Cancer.** 16 mm., color, sound, 590 feet (1 reel), showing time twenty minutes. Prepared in 1948 by The State of California, Department of Public Health, and the California Medical Association Cancer Commission. Produced by Billy Burke Production, Hollywood, Calif. Procurable on loan (Service Charge $3.00) from Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

This film illustrates a method of examination of the female breast for early cancer. The author stresses the essentials of a proper examination, namely, gaining the patient's confidence, good lighting, careful inspection, palpation and transillumination. The author rightfully emphasizes the fact that one should never cause unnecessary manipulation of a breast which is the seat of cancer. He also points out that only by microscopic examination can the exact nature of a lesion of the breast be accurately diagnosed. Also, transillumination can only be properly performed in an absolutely darkened room. This film would be of particular value as an educational aid and is recommended to state and county medical societies, residents, interns and medical students. The color photography is excellent.

# Medical Examinations and Licensure

## COMING EXAMINATIONS AND MEETINGS

### NATIONAL BOARD OF MEDICAL EXAMINERS

National Board of Medical Examiners: *Parts I and II.* Various Centers, Feb., June and Sept. 1949. *Part II.* April 1949. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2, Pa.

### EXAMINING BOARDS IN SPECIALTIES

American Board of Anesthesiology, Inc.: *Written.* July 15. Various locations. Final date for filing application is April 15. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Avenue, New York 27.

American Board of Dermatology and Syphilology: *Oral.* New York City, April 1-3. Sec., Dr. George M. Lewis, 66 East 66th Street, New York 21.

American Board of Internal Medicine: New York City, March 23-25. Philadelphia, June 1-3. *Written.* Oct. 17, 1949. Final date for filing application is May 1. Asst. Sec.-Treas., Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

American Board of Neurological Surgery: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

American Board of Obstetrics and Gynecology, Inc.: *Oral.* Chicago, May 8-14. Final date for filing application is April 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

American Board of Ophthalmology: *Oral.* San Francisco, March 21-24; New York, June 11-15; St. Louis, Oct. 15-19; Boston, Dec. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

American Board of Orthopedic Surgery: *Part I.* Various Centers, April and May. Sec., Dr. Francis M. McKeever, 1136 W. 6th St., Los Angeles 14.

American Board of Otolaryngology: New York, May 11-14, Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City

American Board of Pathology: Boston, April. Final date for filing application is March 1. Sec., Dr. Robert A. Moore, 507 S. Euclid Ave., St. Louis 10, Mo.

American Board of Pediatrics: *Oral.* Baltimore, May 7-9. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

American Board of Physical Medicine: Atlantic City, June 4-5. Final date for filing application is March 15. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

American Board of Plastic Surgery: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

American Board of Surgery: *Written.* Various Centers, March 1949. Sec., Dr. J. S. Rodman, 225 S. 15th St., Philadelphia.

American Board of Urology: Feb. 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

### BOARDS OF MEDICAL EXAMINERS

Alabama: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

Alaska: * Juneau, March 1. Sec.-Treas., Dr. W. M. Whitehead, Box 140, Juneau.

Arkansas: * Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

California: *Examination,* Los Angeles, Feb. 28-March 3. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

Connecticut: * Hartford, March 8-9. Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

District of Columbia:* *Reciprocity,* Washington, March 14. Sec., Dr. George C. Ruhland, 4130 Municipal Building, Washington.

Florida: * *Examination,* Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

Georgia: *Examination.* June, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

Guam: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam, % F.P.O. San Francisco, Calif.

Indiana: *Examination.* Indianapolis, June. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

Iowa: *Examination.* Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

Kentucky: *Examination.* Louisville, June 15-17. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

Maine: Portland, March 8-9. Sec., Dr. Adam P. Leighton, 192 State Street, Portland.

Maryland: *Examination,* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore.

Massachusetts: *Examination.* Boston, March 8-11. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

Mississippi: Jackson, June. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

Montana: Helena, April 4-6. Sec., Dr. O. G. Klein, First National Bank Building, Helena.

Nebraska: * *Examination.* Omaha, June. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

Nevada: Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

New Hampshire: Concord, March 10. Sec., Board of Registration in Medicine, Dr. John S. Wheeler, 107 State House, Concord.

New Jersey: *Examination.* Trenton, June 21-24. Sec., Dr. E. H. Hallinger, 28 West State Street, Trenton 8.

New Mexico: Santa Fe, April 11-12. Sec., Dr. V. E. Berchtold, 141 Palace Ave., Santa Fe.

North Carolina: *Endorsement.* Pinehurst, May 9. *Examination.* June 23-25. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

Ohio: *Endorsement.* Columbus, April 5. *Written.* Columbus, June. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

PUERTO RICO: *Examination.* Santurce, March 1. Sec., Mr. Luis Cueto Coll, Box 3717, Santurce.

SOUTH CAROLINA: Columbia, June 27-29. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

TEXAS: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb, 209 Medical Arts Bldg., Fort Worth 2.

UTAH: *Examination.* Salt Lake City, July. Sec., Dept. of Registration, Miss Rena B Loomis, 324 State Capitol Bldg., Salt Lake City.

VIRGINIA: *Examination.* Richmond, June 17-18. *Reciprocity.* Richmond, June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.

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* Basic Science Certificate required.

BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: Juneau, Feb. 21-26. Sec.-Treas., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: *Examination.* Tucson, March 15. Sec., Dr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

COLORADO: *Examination.* Denver, Mar. 2-3. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver.

DISTRICT OF COLUMBIA: *Examination.* Washington, April 18-19. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., East, Washington.

FLORIDA: *Examination.* Gainesville, June 11. Sec., Mr. M. W. Emmel, University of Florida, Gainesville.

MINNESOTA: *Examination.* April, June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

OKLAHOMA: Spring of 1949. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: Portland, March 5 and June 18. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

SOUTH DAKOTA: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.

TENNESSEE: Memphis, March 21-22. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

WISCONSIN: Madison, April 2., Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College, Ripon.

# Bureau of Legal Medicine and Legislation

## MEDICOLEGAL ABSTRACTS

**Paternity: Blood Grouping Tests Inadmissible to Prove Paternity.**—In a suit by the plaintiff mother to have the defendant husband declared to be the father of a child born to her, the trial court, over the defendant's objection, granted the plaintiff's request that the defendant be required to submit to a blood test. From such action of the trial court, the defendant appealed to the Supreme Court of South Dakota.

It was the defendant's contention on appeal that the action of the trial court compels him to give evidence which may tend to incriminate him. The motion of the plaintiff on which the trial court entered the order under review, said the Supreme Court, simply moves the court for an order requiring defendant "to submit to a blood test to determine whether or not the defendant, James Brigham, is the father. . . ." The affidavit in support of said motion states in substance the issue of paternity as presented by the pleadings and the willingness of the plaintiff and her child to submit to blood tests and demands that the defendant submit to a test "to determine the paternity of said child." The affidavit then nominates a physician to conduct the tests. It is readily observed, said the Supreme Court, that the plaintiff's application was predicated on the erroneous assumption that paternity may be established by blood tests.

In a prior case (*State v. Damm,* 64 S. D. 309, 266 N. W. 667) the Supreme Court recognized blood tests as admissible in proceedings in which paternity is at issue and held that the trial court has inherent power and authority, in the exercise of its reviewable discretion, to order the taking of blood for purposes of making tests if the results, in the court's opinion, are likely to be helpful in ascertaining the truth. The paternity of a child, the court continued, cannot be determined by testing and classifying blood from the defendant and comparing the same with like tests of blood of the plaintiff and the child. Such tests may in some instances prove nonpaternity. They never establish paternity. In another former case decided by this court (*Smith v. Smith,* 24 N. W. (2d) 8) it was held that the results of blood tests not tending to exclude either the husband or another man under suspicion were not helpful. No possible benefit could result to the plaintiff, concluded the Supreme Court, should blood grouping tests be made such as were sought by her. We believe, therefore, that the showing in support of the order appealed from was insufficient to establish good cause under the South Dakota statutes. Accordingly, the action of the trial court was reversed and the trial court's order requiring the submission of the defendant to a blood test was set aside.—*State ex rel. Wollock v. Brigham, 33 N. W. (2d) 285 (S. D., 1948).*

**Prenatal Injuries: Liability for Negligent Injuries to Unborn Child.**—Can a child, after birth, recover for prenatal injuries suffered by reason of the negligence of another?

In Mays v. Weingarten, the infant plaintiff was born prematurely because of the defendant's negligence in permitting his automobile to collide with a bus in which the plaintiff's mother was a passenger. The trial judge sustained the defendant's demurrer, so the plaintiff appealed to the court of appeals of Ohio, Mahoning County. The plaintiff contended that under the state constitution, providing that "all courts shall be open, and every person, for an injury done him in his . . . person, . . . shall have remedy by due course of law, and shall have justice administered without denial or delay," he was a person and, therefore, entitled to maintain his suit. A person, said the court of appeals, is defined in Black's Law Dictionary and Webster's New International Dictionary as "(1) A rational being; a being possessing or forming the subject of, personality; hence, an individual human being. (2) A human being; one as distinguished emphatically from things or animals. (3) The bodily form of a human being; body outward appearance." The difficulty with the plaintiff's argument, said the court of appeals, is that when injured "in (his) the mother's womb he had no separate existence of his own. When born he became a person . . . His full rights as a human being sprang into existence with his birth." In the absence of a statute, said the court of appeals, the general rule is that a child may not recover for prenatal injuries. Since there is no statute in Ohio relating to this matter, the court of appeals concluded, we must follow the general rule. The judgment of the trial court in favor of the defendant was accordingly affirmed.

In Williams v. Marion Rapid Transit, Inc., the infant plaintiff was born prematurely when her mother was injured by a fall from the steps of one of the defendant's buses. The trial court in this case, also, sustained the defendant's demurrer and an appeal was accordingly taken by the plaintiff to the court of appeals of Ohio, Marion County. Eminent and many decisions are adverse to a recovery, said the court of appeals. Many of the courts rule that precedents are binding and that there is no relief, while at the same time the courts indicate that natural justice points the other way. "It is a general rule of law that in the absence of a statutory provision requiring a different result, a prenatal injury affords no basis for an action in damages in favor of the child. The doctrine of the civil law and the ecclesiastical and admiralty courts that an unborn child may be regarded as in esse for some purposes, when for its benefit, has been characterized as a legal fiction not indulged in by the courts to the extent of allowing an action by an infant for injuries occasioned before its birth. A reason advanced for this rule is that there is no person in being at the time of the accident to whom the defendant owes a duty of care." Biologically speaking, said the court, the life of a human being begins at the moment of conception in the mother's womb. However, there is a medical distinction between the terms embryo and viable fetus. The embryo, the court continued, is a fetus in its earliest stage of development, especially before the end of the third month, but the term viable means that the fetus has reached such a stage of development that it can live outside the uterus. It is the opinion of this court, the court of appeals concluded, that an infant as a existing viable child in its mother's womb has a cause of action after birth for injuries caused by the negligence of another and that neither a statute nor a fiction of law is necessary to allow a recovery by such child. Accordingly the action of the trial court in overruling the defendant's demurrer was overruled and the case was remanded to the trial court for further proceedings.—*Mays v. Weingarten, 82 N. E. (2d) 421 (Ohio, 1948). Williams v. Marion Rapid Transit, Inc., 82 N. E. (2d) 423 (Ohio, 1948).*

# Current Medical Literature

## AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

### American J. Digestive Diseases, Fort Wayne, Ind.

**15**:321-358 (Oct.) 1948

Pruritus in Hepatic Disease. S. E. Schechter and H. Necheles.—p. 321.
*Problems in Diagnosis and Treatment of Non-Calculous Gall Bladder. H. L. Segal, H. A. Friedman and J. S. Watson Jr.—p. 325.
Value of Special Pepsin-Pancreatic Preparation in Treatment of Peptic Ulcer and Gastric Hyperacidity. J. Weissberg, T. H. McGavack and Linn J. Boyd.—p. 332.
Clinical Evaluation of New Laxative. A. D. Blake Jr.—p. 336.
Nutrition in Geriatrics—Psychologic and Somatic Aspects. R. Ginzberg.—p. 339.

**The Noncalculous Gallbladder.**—Segal and his co-workers apply the term noncalculous gallbladder to one which is the cause of abdominal distress without the presence of calculi either in the gallbladder itself or in its afferent or efferent tributaries. Disease may or may not be present in such a gallbladder. The authors employ the classification of Russell and his associates as an aid in formulating diagnostic criteria. They have divided gallbladder disorders into (1) disorders resulting in disturbances in filling and emptying mechanism of gallbladder, (2) disorders resulting in disturbances in the concentrating function of the gallbladder and (3) disorders in blood and metabolism resulting in disturbances of the gallbladder. The history, roentgenogram, duodenal drainage and study of the bile pigments in the urine are evaluated as diagnostic factors. The history and the roentgenogram are the two most important means by which the diagnosis is made. Duodenal drainage is necessary in many cases to determine the presence of stasis and occasionally of the type of infection. The recent conception of regurgitation jaundice and the simplified technics to study bile pigments may be of aid in determining the presence of liver damage. The authors discuss the place of surgical and medical management in relationship to the type of disturbance. In the medical management the amount and kind of fat used will mainly depend on its effect on symptoms. The selection of bile salt therapy depends on the type of gallbladder derangement. Oxidized unconjugated bile salts are suggested for flushing. The unoxidized conjugated natural bile salts are recommended for a concentrated bile.

### American Journal of Medicine, New York

**5**:479-628 (Oct.) 1948

Lysozyme Activity in Ulcerative Alimentary Disease: I. Lysozyme in Peptic Ulcer. K. Meyer, J. F. Prudden, W. L. Lehman and Anita Steinberg.—p. 482.
Id.: II. Lysozyme Activity in Chronic Ulcerative Colitis. K. Meyer, A. Gellhorn, J. F. Prudden and others.—p. 496.
Bleeding Peptic Ulcer: Review of 57 Consecutive Cases. R. L. Fisher and M. Zukerman.—p. 503.
Metabolic Studies in Cushing's Syndrome: Treatment with Various Androgens and Six-year Follow-Up. E. H. Keutmann, H. A. Friedman, S. H. Bassett and others.—p. 518.
Insulin Mixtures and Conservation of Insulin. R. M. Wilder.—p. 532.
*Liberal Regimen of Treatment of Diabetes. H. J. John.—p. 537.
Fatal Anuria, Nephrotic Syndrome and Glomerular Nephritis as Sequels of Dermatitis of Poison Oak. D. A. Rytand.—p. 548.
Primary Carcinoma of Liver. H. L. Holley and G. Pierson.—p. 561.
Primary Carcinoma of Liver. S. D. Spatt and D. M. Grayzel.—p. 570.
So-Called Extrarenal Uremia: Study of 20 Cases. F. D. Murphy, B. J. Peters and R. C. Newman.—p. 574.

**Treatment of Diabetes.**—John advocates an almost free diet with adequate control as reflected in the blood sugar level throughout the day, not merely in the fasting blood sugar. If the fasting blood sugar is normal, the noon sugar elevated and the evening blood sugar normal, this is acceptable. If the fasting blood sugar is normal and the evening levels high, some insulin should be added to the protamine zinc insulin in the morning to take care of this postprandial rise. If all three blood sugars are elevated, the protamine zinc insulin should be increased and the subsequent checkup will show whether or not some insulin should be added to the protamine zinc insulin. Both insulins should be given in the same syringe, in one injection, so as to diminish the discomfort. It does not matter whether some of the insulin is changed over to protamine zinc insulin. The important thing is not "how much of the insulin is changed over" but "how it works." With such a regimen the patient loses no time from work and is not overburdened with impractical details which disturb his equanimity.

### American Journal of Psychiatry, New York

**105**:241-320 (Oct.) 1948. Partial Index

Genesis of Hostility in Children. Lauretta Bender.—p. 241.
Dynamic Mechanisms Underlying Some Forms of Cerebral Dysfunction. S. Brock.—p. 246.
Minnesota Multiphasic Personality Inventory Patterns Before and After Insulin Shock Therapy: Preliminary Report. W. M. Hales and W. Simon.—p. 254.
Clinical Significance of Minnesota Multiphasic F Scale Evaluated in Experimental Neurosis. J. Brozek and B. C. Schiele.—p. 259.
Psychodynamic Considerations in Gilles De La Tourette's Disease (Maladie Des Tics): With Report of 5 Cases and Discussion of Literature. E. Ascher.—p. 267.
Lymphocytes in Psychoneuroses: Preliminary Observations. H. C. Shands and J. E. Finesinger.—p. 277.
*Mental Attitude of Cancer Patient to His Disease. B. J. Ficarra.—p. 304.

**Mental Attitude of Patient with Cancer.**—According to Ficarra the reception by patients of the verdict of chronic heart disease or nephritis does not produce any unusual psychologic conflict. To suggest cancer stirs a tempest of mental agony. Whenever possible the relatives or friends are told of the presence of cancer. Though the patient is rarely informed, he may suspect the cause for his distress. When the patient with cancer is youthful, the reception of this knowledge usually causes more emotional upset in relatives and friends than in the patient himself. Young adults have a greater capacity for adapting themselves to their fate than their elders. In the geriatric age group, the sense of approaching death is ever present. Old patients fear it and are more nervous about it than youths. Rarely has a cancer patient acquired a true psychosis. In patients with gastrointestinal cancer azotemia usually develops with its associated mental retardation. Other types of cancer patients are overcome by toxemia, or are so completely morphinized that they are deprived of complex perceptions, ratiocination and intensive thought.

### Georgia Medical Association Journal, Atlanta

**37**:329-368 (Sept.) 1948

Coronary Artery Heart Disease. G. R. Herrmann.—p. 329.
Pulmonary Vascular Obstruction Due to Sarcoid: Case Report. W. Harbin Jr. and E. Bosworth.—p. 337.
Syphilitic Gumma of Aortic Ring and Left Ventricle, and Aneurysm of Sinus of Valsalva, with Demonstration of Treponema Pallidum. D. F. Mullins Jr., H. H. Marquis and W. Schulze.—p. 340.
Coronary Artery Disease Presenting Atypical Symptoms. E. F. Wahl.—p. 342.
Use of Anticoagulants in Acute Myocardial Infarction. S. B. Carter.—p. 345.
Problems of Knee Joint. J. F. Lovejoy.—p. 349.

### Indiana State Medical Assn. Journal, Indianapolis

**41**:993-1140 (Oct.) 1948

*Industrial Diseases of Chest. L. E. Hamlin.—p. 1013.
Toxemia of Pregnancy. R. D. Bryant.—p. 1018.
Infectious Mononucleosis—Review of Disease. W. W. Dalton.—p. 1021.

**Industrial Diseases of Chest.**—Hamlin points out that it is most difficult to overcome the effect on a worker when once he has been told by his family physician that shadows observed in the roentgenogram of his chest are the result of silicosis, when actually there has been no significant exposure. Such interpretations frequently result in unjustified claims for compensation as well as unnecessary apprehension on the part of the employee. The author discusses the chest conditions the roentgen patterns of which may simulate silicosis. He stresses that unless there has been definite exposure to hazardous dust, as demonstrated by actual counts of respirable particles of free silica in the breathing zone of the worker, one should be extremely cautious about making an interpretation of silicosis even though the roentgenogram strongly suggests it.

## Journal of Bacteriology, Baltimore

### 56:379-508 (Oct.) 1948. Partial Index

Biochemical and Serological Study of Group of Identical Unidentifiable Gram-Negative Bacilli from Human Sources. Isabelle G. Schaub and F. D. Hauber.—p. 379.
Further Studies on the Gram Stain. H. Baker and W. L. Bloom.—p. 387.
Prophylactic Immunization Against Streptococcus Sanguis. Erna Alture-Werber and L. Loewe.—p. 391.
*Studies on Behavior of Fungi in Presence of Radioactive Isotopes. I. A. Pearson, J. M. Hammer, K. E. Corrigan and H. S. Hayden.—p. 397.
Growth of T2 Virus on Ultraviolet-Killed Host Cells. T. F. Anderson.—p. 403.
Antigen Relationships of 765 Paracolobactrum Intermedium Cultures. C. A. Stuart, Mildred M. Galton and Virginia McGann.—p. 411.
Unusual Type of O Agglutination. C. A. Stuart, R. Feinberg and R. Feinberg.—p. 419.
Effects of Nitrogen Mustard on Escherichia Coli. V. Bryson.—p. 423.
Isolation of L Type Cultures from Bacteroides with Aid of Penicillin and Their Reversion into the Usual Bacilli. L. Dienes.—p. 445.
Streptomyces Venezuelae, N. Sp., Source of Chloromycetin. J. Ehrlich, D. Gottlieb, P. R. Burkholder and others.—p. 467.
Influence of Subculture Media on Results Obtained in Disinfectant Testing. F. W. Tilley.—p. 479.
Bacteriologic Studies on Aureomycin. T. F. Paine Jr., H. S. Collins and M. Finland.—p. 489.
Pyruvic Acid Metabolism: Factor Required for Oxidation by Streptococcus Faecalis. D. J. O'Kane and I. C. Gunsalus.—p. 499.

**Fungi in Presence of Radioactive Isotopes.**—Pearson and his co-workers found that certain shipments of radioactive isotopes ($P^{32}$ and $I^{131}$) were contaminated with fungus spores. These spores were observed under the microscope and cultures of them were identified. As a result of this observation, the authors decided to test the sensitivity of numerous stock cultures of fungi. They exposed cultures of forty-three different types of fungi to radioactive iodine, radioactive phosphorus and high voltage roentgen rays. The cultures were grown on Sabouraud's medium until there was a good growth and spores were visible microscopically. Enough sterile sodium chloride solution was added to each tube to bring the water level to the top of the agar slant. Twenty microcuries of radioactive phosphorus or iodine was added to each tube. They were left at room temperature for forty-eight hours; subcultures were then made and incubated at room temperature. Cultures of the same fungi were exposed to an equivalent amount of high voltage roentgen rays and then subcultured. Since $P^{32}$, $I^{131}$ and roentgen rays were not lethal and no gross morphologic changes in the fungi were noted, a pathogen and a nonpathogen, after exposure to the radioactive solutions, were inoculated intravenously into animals to check alteration in pathogenicity. Alternaria, the nonpathogen, could be followed with the Geiger counter after injection; when the animal was killed after fifteen days no lesions were found, and the organism could not be cultured from postmortem material. The animals receiving Blastomyces dermatitidis died in twenty-four days or less of generalized blastomycosis. Radioactive substances apparently do not alter the morphology or the pathogenicity of fungi, and solutions of radioactive iodine and phosphorus are not self sterilizing.

## New York State Journal of Medicine, New York

### 48:2095-2206 (Oct. 1) 1948

Tropical Diseases of Gastrointestinal Tract in Veterans. H. B. Shookhoff.—p. 2133.
Pilonidal Cyst. J. C. M. Brust and J. B. Sarner.—p. 2138.
Diagnosis and Treatment of Colon Polyps. G. E. Binkley.—p. 2145.
Radical Operations on the Head of the Pancreas. W. B. Parsons.—p. 2149.
*Role of Vagus Nerves in Medical and Surgical Therapy of Peptic Ulcer. A. Winkelstein.—p. 2153.
Constitutional Approach to Medicine. I. P. Stevenson.—p. 2156.
Potentialities and Limitations of Corrective Rhinoplasty. L. S. Safian.—p. 2160.
Phenylethylhydantoin in Treatment of Sydenham's Chorea. T. R. Kirk.—p. 2165.
The Accident-Prone Patient. Marion Norris Gleason.—p. 2168.

**Vagus Nerves in Treatment of Peptic Ulcer.**—Tests carried out by Winkelstein on ambulatory patients with uncomplicated duodenal ulcers and on normal controls demonstrated that both large (15 units) and small (5 units) doses of insulin given intravenously provoke a markedly higher acid response in patients with duodenal ulcers than in normal persons. This suggests that the central vagus nucleus is hyperirritable to drops in blood sugar in ulcer patients. Earlier experiments revealed that sham feeding which strongly stimulates the vagus reflexly gave a higher response in ulcer patients than in normal persons. In a third series of studies it was shown that the nocturnal secretion of ulcer patients is increased at least threefold in acidity and volume over that of normal persons. Physiologists agree that the chief stimuli for the night secretion are mediated through the vagus nerves. *Irrespective of the ultimate* course of ulcer, the vagus nucleus and nerves play a central part in the ulcer problem. Medically, intragastric drip therapy with milk-sodium bicarbonate solution or diluted alumina gels is of considerable value in controlling the night secretion, and surgically vagotomy seems important in the attack on the vagi. The author favors partial gastrectomy combined with vagotomy, since it gives the least motor disturbance and the highest percentage of postoperative nocturnal achlorhydrias. He regards gastroenterostomy plus vagotomy less favorably and more in the light of an experiment. He is opposed to simple bilateral vagotomy alone because of recurrences and untoward symptoms resulting from the vagotomy.

## North Carolina Medical Journal, Winston-Salem

### 9:495-546 (Oct.) 1948

Panel Discussion on Peptic Ulcer. W. R. Johnson, A. D. Tuggle, H. H. Bradshaw and M. H. Greenhill.—p. 495.
Correction of Nasal Profile Line. K. L. Pickrell and J. W. Kelley.—p. 503.
Technic of Breast Feeding. F. H. Richardson.—p. 510.
Treatment of Simple Fractures of Shaft of Femur by Fixed Traction Spica: Preliminary Report. R. A. Moore and E. W. Schafer.—p. 514.
Effect of Tobacco on Estrus, Pregnancy, Fetal Growth, and Lactation: Critical Review of Literature. R. V. Long and W. A. Wolff.—p. 519.
Effects of Use of Tobacco on Natural Blood Sulfocyanates and Blood Pressure Levels. V. S. Caviness.—p. 522
Observations on Use of Vinbarbital Sodium in Obstetrics. J. C. Burwell Jr.—p. 525.

## Occupational Medicine, Chicago

### 5:339-440 (April) 1948

Medical Profession's Interest in Industrial Health and Safety Services. T. P. Murdock.—p. 339.
Health Problems of Miners in Rocky Mountain Area. F. V. Colombo.—p. 343.
Industrial Development in Rocky Mountain Region: Its Impact on Medical Profession. R. L. Stearns.—p. 349.
Prepaid Comprehensive Medical Care. J. J. Wittmer.—p. 354.
Industrialization in Northwest: Demands Likely to Be Felt by Medical Profession. L. M. Farner.—p. 360.
Physicians and Vocational Rehabilitation for Civilians. S. Norwick.—p. 368.
Need for Better Understanding and Cooperation Between Industrial and Private Practitioners. J. R. Erwin.—p. 374.
*Prognosis in Pulmonary Tuberculosis: Ten Year Follow-Up Study. C. R. Allison.—p. 379.
*Compensation for Psychiatric Disabilities in Industry.* C. A. Whitaker.—p. 391.
Pneumonoconiosis from Synthetic Abrasive Materials. Adelaide R. Smith and A. E. Perina.—p. 396.
Medical Services for Small Industrial Companies. R. F. Buchan.—p. 403.

**Prognosis in Pulmonary Tuberculosis.**—The potentialities of a minimal lesion discovered by periodic roentgenographic examination of the chest are becoming, according to Allison, a vital question as larger numbers of such foci are being uncovered in mass surveys. A program for control of tuberculosis based solely on an initial history, medical examination and periodic roentgenograms of the chest has been in operation at the Eastman Kodak Company, Rochester, N. Y., for twenty-five years. In an earlier report the author recorded the results of the program for more than 25,000 war workers during a five year period. Now he presents observations made on the course of the disease in a group of employees with clinical and/or roentgenographic evidence of pulmonary tuberculosis who were followed for ten or more years. Eighty-five employees in a group of 93, the majority of whom worked more than twenty years, never had clinical evidence of active infection. The serial roentgenograms of the majority of this group showed changes in minimal lesions from relative "softness" to resolution, calcification or contraction over the years. Active pulmonary tuberculosis may develop after long periods (upward of ten years) of apparent inactivity. It may appear in persons with "negative" roentgenograms of the chest as late as the forty-fifth year of life. Relatively short periods of treatment for a minimal lesion are sufficient to return most persons to their usual work. The incidence of relapse is low.

### Oklahoma State Medical Assn. Jour., Oklahoma City

**41**:369-406 (Sept.) 1948

Vaginal Hysterectomy. F. D. Sinclair.—p. 371.
Ectopic Pregnancy. I. F. Stephenson.—p. 373.
Injuries of Urethra, Their Diagnosis and Care. V. Vermooten.—p. 376.
*Association of High Blood Pressure, and Increased Pulse Rate As Manifestation of Hyperglycemia in Chronic Eye, Ear, Nose and Throat Conditions. E. H. Coachman.—p. 379.

**High Blood Pressure and Pulse Rate as Manifestation of Hyperglycemia.**—Coachman asserts that patients with hyperglycemia do not always show glycosuria because of a high renal threshold, which prevents the sugar from being passed from the blood into the urine. This repeated retention produces headaches, photophobia, lacrimation, dizziness, increased postnasal discharge, paresthesias, generalized fatigue, transient scotomas and diplopia, which may progress to nausea and vomiting. Erroneous diagnoses of Ménière's syndrome, "sinus trouble," "loss of equilibrium" and allergic manifestations are often made. Many of these patients have no sugar in the urine and have normal fasting blood sugars, and so the existence of hyperglycemia is often missed. The two hour dextrose tolerance test, however, will reveal hyperglycemia. Elevated blood pressure and fast pulse rate in the presence of a normal or subnormal temperature are frequently enough associated with hyperglycemia to warrant doing two hour dextrose tolerance tests routinely in these cases. Overweight, short neck, stout persons predominate in this group, and cataracts are so frequently seen that hyperglycemia is suspected of being a contributing cause. Latent vertical phoria is found in persons with elevated blood pressure and fast pulse, and on inclusion of the vertical correction in their lenses, the dizziness, photophobia, lacrimation and asthenopic symptoms are further relieved, even after control of the blood sugar. Latent vertical phoria should enter in the differential diagnosis in suspected cases of Ménière's syndrome and in "sinus" or "sick" headaches.

### Pennsylvania Medical Journal, Harrisburg

**51**:1377-1488 (Sept.) 1948

Tumors of Male Breast. C. J. Bucher and J. M. Surver.—p. 1401.
*Surgical Relief of Pain in Shoulder and Upper Extremity. A. F. Jonas.—p. 1403.
Clinical Study of New Antihistaminic Drug—Thephorin. C. S. Pennypacker and I. Sharpless.—p. 1407.
Ambulatory Treatment of Hypertension with Rice Diet. H. E. Canter.—p. 1411.
Fishbone Perforation of Gastro-Intestinal Tract. W. L. Martin and I. L. Lichtenstein.—p. 1414.
Unilateral Hydrosalpinx with Torsion without Involvement of Ovary: Case Report. R. H. Kazmierski.—p. 1416.

**Surgical Relief of Pain in Shoulder.**—Jonas points out that pain in the shoulder and upper extremity is frequently dismissed as "neuritis" or treated with heat and salicylates with indifferent or poor results. In a large proportion of cases the pain is caused by a lesion amenable to surgical or orthopedic correction. Understanding of the neurologic pathways mediating such pain is essential. Two of the author's patients with cervical ribs had undergone previous cholecystectomy without relief; another with cervical intervertebral disk had led the restricted life of an anginal cripple. The author discusses pains caused by lesions of the cervical intervertebral disks and by cervical ribs; also the scalenus anticus syndrome, lesions involving the peripheral nerves and those involving the autonomic nervous system, such as Raynaud's disease and Weir Mitchell's causalgia. Surgical procedures are available for relief of these conditions and deserve a wider appreciation.

### Philippine Medical Association Journal, Manila

**24**:407-486 (Aug.) 1948

Surgery of Peptic Ulcer. J. R. Estrada and P. T. Nery.—p. 407.
Refinements in Technic of Cystolithotomy. L. F. Torres Jr.—p. 411.
Safeguards in Nupercaine Spinal Anesthesia (Preliminary Report of 108 Consecutive Cases Operated in North General Hospital During Last 18 Months). A. I. Reyes and O. J. Reyes.—p. 415.
Total Cystectomy in Management of Bladder Tumors. D. Antonio Jr.—p. 425.
*Painless Appendectomy. F. C. Guzman and O. J. Reyes.—p. 429.

**Painless Appendectomy.**—Guzman and Reyes say that a short-acting barbiturate and narcotic, in the form of seconal sodium® and morphine in combination with the usual local infiltration anesthesia, has been found to render painless such short-lasting operations as elective appendectomies. This anesthetic regimen was employed in 890 elective appendectomies, including 285 acute cases, and it was found successful except in 4 cases. Timing is important. Seconal sodium®, 3 grains (0.2 Gm.), should be given one hour before, and morphine sulfate, ¼ grain (15 mg.), thirty minutes prior to the operation. It has been observed that with this regimen the patients are brought to the operating room, operated on and taken back to ward either fast asleep or half asleep, but all of them have remarked that the operation was painless.

### Proc. Soc. Exper. Biol. & Med., Utica, N. Y.

**68**:421-734 (July-Aug.) 1948. Partial Index

Growth of Neurotropic Viruses in Extraneural Tissues. I. MM Virus in Feet of Hamsters. C. A. Evans and Velma C. Chambers.—p. 436.
Mechanism of Egg-White Inhibition of Hemagglutination by Swine Influenza Virus. F. Lanni and J. W. Beard.—p. 442.
Practical Method for Determination of Serum Streptomycin Level Using "Donovania granulomatis" as Test Organism. R. B. Dienst, C. H. Chen and R. B. Greenblatt.—p. 450.
Streptomycin Resistant Variants Obtained from Recently Isolated Cultures of Tubercle Bacilli. G. P. Youmans and Elizabeth H. Williston.—p. 458.
Radiation-Induced Hemorrhagic Disease in Chickens. F. J. Dixon.—p. 505.
Postganglionic Site of Action of Nicotine with Special Reference to Its Direct Action on Blood Vessels. H. Haimovici.—p. 516.
Pyridoxine, Choline and 1-Methionine Content of Parenteral Liver Extract. G. W. Clark.—p. 525.
Use of Sodium Azide to Control Bacterial Destruction of Rh Agglutinating Antibodies. G. Miller and H. C. Batson.—p. 534.
Age and Susceptibility to Convulsions. E. Gellhorn and H. M. Ballin.—p. 540.
Production of Less Sensitive Rapid Antigen for Diagnosis of Brucella Infections. E. L. Shipe Jr. and D. F. Holtman.—p. 546.
Intestinal Absorption of Vitamin A from Aqueous and Oily Menstruum. H. Popper and B. W. Volk.—p. 562.
Factors Affecting the Survival of Treponema Pallidum in Vitro. R. A. Nelson Jr. and H. G. Steinman.—p. 588.
Isolation of Poliomyelitis Virus from Human Stools During the Incubation Period. F. M. Schabel Jr., A. E. Casey, W. I. Fishbein and H. T. Smith.—p. 593.
*Occurrence of Rabies Virus in Blood of Developing Chick Embryo. H. Koprowski and H. R. Cox.—p. 612.
*Virus of Eastern Equine Encephalomyelitis Isolated from Chicken Mites (Dermanyssus gallinae) and Chicken Lice (Eomenacanthus stramineus). B. F. Howitt, H. R. Dodge, L. K. Bishop and R. H. Gorrie.—p. 622.
Serum Concentration of Penicillin Following Administration of Crystalline Procaine Penicillin G in Aqueous Suspension. P. Whittlesey and W. H. Hewitt.—p. 658.

**Rabies Virus in Chick Embryo Blood.**—Koprowski and Cox point out that the question whether rabies virus is present in the blood of infected animals has been debated for several decades. The authors found in the course of studies on rabies infection in the developing chick embryo that rabies virus is distributed throughout the tissues of the embryo with no particular affinity for the central nervous system. These results suggested a hematologic spread of the virus and, therefore, presence of the virus in the blood of the embryo. The authors describe experiments dealing with the latter possibility. They inoculated the Flury strain of rabies virus by the yolk sac route into 7 day old chick embryos. By means of intracerebral injections into mice, the virus was recovered from the chick embryo blood secured from the third to the fifteenth postinoculation day. Similar results obtained in two series of experiments seem to exclude the possibility of a major experimental error. While these experiments do not prove or disprove the infectiousness of mammalian blood from rabies-infected animals, they do indicate a completely different mechanism of dissemination of the virus in embryonated eggs.

**Eastern Equine Virus from Arthropods.**—Howitt and his associates point out that within recent years several neurotropic viruses have been recovered from the chicken mite, Dermanyssus gallinae (De Geer), and it has been shown not only to harbor the viruses in nature but to maintain at least one of them by transovarian passage. During the summer of 1947 sporadic cases of encephalitis in children had been reported from several areas of central Tennessee. Many of the cases were in rural or semirural districts and were often associated with the presence of domestic fowl. On Aug. 23, 1947, approximately 300 chicken mites, Dermanyssus gallinae, were removed from the roosts of a chicken house near Shelbyville, Tenn. The authors have recovered the virus of Eastern equine encephalomyelitis from chicken mites and from a mixture of chicken lice. Neutralizing antibodies for this virus were present in the serums of a few chickens and one cow. Further confirmation is needed to prove the role of mites and especially of lice as true vectors of this virus.

## FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

### British Medical Journal, London

2:585-628 (Sept. 25) 1948

Present Position of Neurosurgery in Gynecology. A. Davis.—p. 585.
Pethidine and Scopolamine in Labor. Hilda Roberts.—p. 590.
*Celiac Disease. W. Sheldon.—p. 594.
Study of Breast-Feeding in Mining Town. Enid L. Hughes.—p. 597.
Surgical Significance of Aortic Dissecting Aneurysms: Report of 3 Personal Cases with 2 Correct Ante-Mortem Diagnoses. D. P. van Meurs.—p. 599.
Liquor Picis Carbonis (B.P.): Carcinogenic Agent. I. Berenblum. —p. 601.

**Celiac Disease.**—Sheldon emphasizes that celiac disease should be distinguished from other causes of steatorrhea in childhood, particularly from fibrocystic disease of the pancreas. The age of onset of these two conditions is different; children with celiac disease develop normally for several months up to a year or more after birth, while those with pancreatic fibrosis present symptoms from birth. The meconium may be of such stiff consistency as to give rise to symptoms of intestinal obstruction within a few days of birth, often with fatal results, and the name "meconium ileus" aptly describes this aspect of fibrocystic disease of the pancreas. Another point of contrast lies in the appetite. Children with celiac disease have a notoriously fickle appetite, but infants with pancreatic fibrosis have a good, even voracious appetite. The odor of the stools in pancreatic fibrosis is even more repellent than that of the celiac stool; besides the probable excess of fat and starch in both stools the pancreatic stool contains unabsorbed and decomposed dietary protein. Trypsin, lipase and amylase are produced in normal amounts by children with celiac disease, but are either absent or much reduced in children with pancreatic fibrosis. In the early months of life, before celiac disease develops, the infants thrive satisfactorily on a diet of either breast milk or cows' milk. The age of onset of celiac disease usually coincides with the stage when the diet is expanding from milk to mixed feeding. The greatest change at this age is the addition to the diet of starch in rapidly increasing amounts. While children with celiac disease pass an excessive amount of fat in their stools, the view that fat in their diet should be severely reduced is difficult to maintain; indeed, the evidence would suggest that attention ought to be directed primarily toward their difficulty with starches.

### Edinburgh Medical Journal

55:385-448 (July) 1948

Congenital Heart Disease. A. R. Gilchrist.—p. 385.
*Pteroylglutamic Acid (Folic Acid). Therapeutic Indications and Limitations. L. S. P. Davidson.—p. 400.
Argument on Neural Tumors and Their Allies. W. F. Harvey.—p. 412.
Importance of External Hysterography in Study of Uterine Activity. T. M. Abbas.—p. 423.
Hemolysis of Erythrocytes in Sodium Chloride Solution and in Sodium Phosphate Buffers. E. B. Hendry.—p. 427.

**Pteroylglutamic Acid (Folic Acid).**—Davidson reviews the physiologic, biologic and clinical effects of folic acid and related compounds and offers a new concept of the pathogenesis of megaloblastic blood formation in the different groups of megaloblastic anemia. He describes the therapeutic effects of folic acid in 85 patients with a variety of anemias with and without thrombopenia and leukopenia. It was found that a hemopoietic response occurred only in patients with megaloblastic anemia, although improvement in alimentary symptoms and general health might occur in certain cases of the sprue syndrome with a normoblastic anemia. Folic acid is not recommended for the treatment of addisonian pernicious anemia because of the dangers of development of neurologic complications. Folic acid is the agent of choice in the treatment of the pernicious (megaloblastic) anemia of pregnancy, the pernicious anemia of infants and nutritional (tropical) megaloblastic anemia, and in those cases of the sprue syndrome which fail to respond adequately to parenteral and oral liver therapy combined with suitable dietetic measures, since treatment of these groups of megaloblastic anemia with folic acid is usually required only for a period of a few weeks and the chances of developing neurologic disease are remote.

### Indian Medical Gazette, Calcutta

83:163-208 (April) 1948. Partial Index

*Treatment of Polycythemia by Artificial Infection with Ancylostoma Duodenale. L. C. Brumpt and B. J. Gujar.—p. 166.
Study in Folic Acid. P. V. Karamchandani.—p. 169.
Plasma Concentration of Ascorbic Acid in Health and Pathologic Conditions. I. J. Babbar.—p. 174.
Diabetes Mellitus—Its Manifestations in Oral Cavity. A. Ganguli. —p. 175.
Prevention of Hemolytic Disease of Newborn by Non-Specific Immunization. K. S. Ranganathan.—p. 177.
Treatment of Infantile Diarrhea with Phthalylsulphathiazole. P. N. Laha.—p. 182.

**Artificial Infection with Ancylostoma Duodenale in Polycythemia.**—Brumpt and Gujar point out that treatments of polycythemia formerly in use have been disappointing. In 1939 they, together with Duvoir of Paris, decided to try artificial infection with Ancylostoma duodenale. A small amount of the stool of a patient infected with Ancylostoma duodenale is mixed with animal carbon in an earthen vessel which is placed in a glass bowl containing water. The eggs mature at the temperature of 25 C. and develop into rhabditiform larvae, which after a series of moultings become strongyloides and later infective strongyloides. The latter after ten days gather in the clean water of the glass bowl. The authors use from 300 to 600 larvae according to the degree of polycythemia and the patient's body weight. To inoculate the patient the larvae are collected on a blotting paper soaked in water, which is applied directly over the skin and is covered with cotton to avoid drying. Treatment with hookworms ("ancylostomatherapy") has several advantages. It is simple, and the reduction in the red blood count is slow, regular and never dangerous. It does not require hospitalization or cessation of daily activities. Moreover, the results of the treatment are lasting, as the duration of the untreated hookworm infection in the human body is five or six years. The hookworm infection stops by itself or is easily checked at any stage. The results have been uniformly satisfactory in the 25 patients treated by the authors.

### Journal of Tropical Medicine and Hygiene, London

51:177-198 (Sept.) 1948

Is it Possible to Provoke an Attack of Malaria? C. W. F. Winckel. —p. 178.
Criteria of Cure of "Bilharziasis." F. G. Cawston.—p. 184.

### Lancet, London

2:481-516 (Sept. 25) 1948

*Subacute Bacterial Endocarditis. C. Bramwell.—p. 481.
*Hemophilus Influenzae Meningitis Treated with Streptomycin. P. M. Smythe.—p. 485.
Artificial Heart or Cardiopulmonary Machine: Performance in Animals. V. O. Björk.—p. 491.
Absorption and Excretion Studies with Radioactive Penicillin. S. Rowlands, D. Rowley and H. C. Stewart.—p. 493.
Intestinal Obstruction due to Ascariasis: Report of Case. K. Naji. —p. 495.

**Subacute Bacterial Endocarditis.**—Bramwell says that in 1944 the Medical Research Council initiated an investigation of the treatment of subacute bacterial endocarditis with penicillin at twelve research centers in Britain. His department in Manchester participated in this investigation. His paper is based on the first 50 cases of the disease treated there. Bramwell obtained the impression that a favorable response to penicillin may be expected in about half the patients with subacute bacterial endocarditis; it should be possible to improve on that figure by earlier diagnosis. Early diagnosis is often difficult, and it is suggested that in every patient with unexplained pyrexia, especially if there be an associated heart lesion, a blood culture should be taken without delay. The longer the infection is allowed to run on, the greater the damage to the heart, and consequently the greater the risk of heart failure, which is the principal cause of death. There is a second reason why early diagnosis is so important. The preexisting heart lesion is generally trivial and, if only these patients can be brought under treatment before the infection has had time to produce further damage, it may be hoped to render many of them fit to resume their former occupations. Unfortunately, in some cases, a progressive valvular stenosis develops in the course of healing; in fact, the cure of the infection appears to be directly responsible for the aggravation of the valvular lesion. At present we have no means of dealing with this complication, but perhaps surgeons may be able to help. The high incidence of bacterial endocarditis during pregnancy may prove to be a clue to the line of investigation that should be pursued in searching for preventive measures to combat this disease. The discovery of penicillin has opened a new chapter in the story of bacterial endocarditis. There are other chapters waiting to be written.

**Streptomycin in Meningitis due to Hemophilus Influenzae.**—Smythe points out that meningitis due to Hemophilus influenzae is an important cause of suppurative meningitis, particularly in children under the age of 2 years. In the present series 12 patients were admitted in fifteen months. All were transferred, however, from hospitals covering a wide area. One of the 12 cases of H. influenzae meningitis is excluded from evaluation because there was no bacteriologic evidence of active infection on admission. Of the remaining 11 patients 3 died, and in 1 of these the organism became resistant to streptomycin. Streptomycin gave good results in the cases of mild or moderately severe disease but was unsatisfactory in 3 cases of severe disease. In 3 cases a relapse followed a full course of streptomycin. Factors that might predispose to a relapse are discussed, with particular reference to the duration of treatment. In view of the failure of streptomycin in cases of severe disease and of the possible development of resistant strains, it is recommended that all cases should be treated with streptomycin and sulfonamide drugs. If there is any reason to suspect a severe infection, either antiserum or penicillin should be given in addition.

## South African Medical Journal, Cape Town

### 22:505-540 (Aug. 28) 1948. Partial Index

Varicosities of Spinal Cord Veins: Case Report. S. M. Katz and E. Samuel.—p. 507.
Rupture of Uterus: Notes on 3 Cases. C. Marks.—p. 509.
Carcinoma of Thyroid with Lung Metastases. M. Findlay.—p. 520.
Incisions for Exposure of Peripheral Nerves. C. A. R. Schulenberg.—p. 523.
*Oliguria in Eclampsia: Treatment by Continuous Caudal Anesthesia. H. H. Bloch.—p. 524.
*Fluorine and Endemic Goiter. D. G. Steyn.—p. 525.

**Caudal Anesthesia for Oliguria in Eclampsia.**—Bloch reports the case of woman, aged 22, who had oliguria in her thirty-sixth week of pregnancy. The case is noteworthy because of the remarkable diuresis which followed continuous caudal anesthesia. The author believes that the immediate mechanism of most of the signs and symptoms of eclampsia is vascular constriction or obstruction. Hingson and his co-workers in 1947 reported rapid control of eclampsia by sympathetic block. Where the sympathetic nerves have to be blocked for any length of time, continuous caudal or continuous spinal anesthesia may be employed, because it has the advantage of being simpler than paravertebral block. The author feels that although he cites only a single case, this form of therapy deserves a trial in similar conditions.

**Fluorine and Endemic Goiter.**—Steyn cites observations which suggest the possible association of harmful quantities of fluorine in the drinking water with the occurrence of goiter and the possibility that the goitrogenic effect of fluorine is aggravated by a high calcium content in the drinking water. Fluorine has a special affinity for the thyroid. Various investigations have shown that appreciable quantities of fluorine fed to animals induce an increase in the size of the thyroids. There is a fluorine-iodine antagonism, and it appears feasible that at least in some areas of endemic goiter excessive quantities of fluorine in the drinking water play a part. When a deficiency of iodine is recognized as the cause of endemic goiter, the deficiency may be endogenous and not exogenous. The medical faculty of the University of Pretoria is at present making arrangements for investigations into the possible relationship of fluorine in the drinking water and the incidence of goiter in the inhabitants of several regions in South Africa. Fluorine is being used against dental caries. It has been suggested that small quantities be administered during pregnancy in order to strengthen the fetal teeth. If this method were to be used there are two dangers to be considered: 1. During pregnancy the demand for iodine is increased and the administration of an antagonist to iodine may precipitate goiter. 2. Iodine plays an important rôle as a lactogenic agent in nursing mothers and the presence of excessive quantities of fluorine in their systems may seriously affect the milk supply. These harmful effects of fluorine could be counteracted by the administration of iodine.

## Tubercle, London

### 29:197-219 (Sept.) 1948

Gold Coast Tuberculosis Survey 1947. K. W. Todd.—p. 197.
Prophit Survey: Analytical Review. A. L. Jacobs.—p. 201.
Tuberculosis and World Health Organization: First Communication. J. B. McDougall.—p. 208.

## Acta Tuberculosea Belgica, Brussels

### 39:225-292 (Aug.) 1948

*Special Indications for Use of Streptomycin in Course of Tertiary Forms of Pulmonary Tuberculosis in Adults. R. Jeanneret.—p. 225.
*Laryngeal Tuberculosis and Streptomycin. G. Derscheid and P. Toussaint.—p. 242.
Combat of Tuberculosis in Denmark. R. Linz.—p. 253.
First Results of Treatment with Streptomycin in Sanatorium Practice. A. Gyselen.—p. 264.

**Streptomycin and Pulmonary Tuberculosis.**—Jeanneret points out that general indications for the use of streptomycin in the treatment of tuberculosis have been defined in American, British and more recently French and Swiss reports. These indications are concerned chiefly with episodes of severe hematologic disseminations of primary-secondary tuberculous infection such as in acute miliary tuberculosis, meningitis associated with miliary tuberculosis, apparently isolated tuberculous meningitis and polyserositis. Jeanneret formulates "special" indications for the use of streptomycin in certain chronic or tertiary forms of pulmonary tuberculosis. These indications are based on observations on seventy-seven courses of treatment with streptomycin and on reports of other observers. The author cites special clinical forms in which streptomycin causes considerable improvement: (1) a diffuse bronchopneumonic lesion with small nodular elements, in which the evolution is generally of the subacute type; (2) extensive bronchopneumonic type developing after birth of a child; (3) extensive pneumonic form with recent lobitis; (4) early, diffuse infiltrative form; (5) diffuse nodular form, probably of hematogenic origin, and (6) biapical nodular form of recent development. Streptomycin is likewise valuable in situations created by an accident in the spontaneous evolution of a lesion or by a complication brought on by treatment. This refers to dissemination caused by aspiration of a purulent exudate in cases of pleuropulmonary perforation; exudative pericavitary exacerbation; tuberculous pneumonic exacerbation after thoracoplasty, and atelectasis due to bronchial stenosis. Special indications are suggested for streptomycin treatment in certain localizations of the tuberculous process such as laryngeal and bronchial tuberculosis, pleural complications, tuberculous empyema, urogenital tuberculosis, tuberculous fistulas and osteoarticular tuberculosis.

**Streptomycin in Laryngeal Tuberculosis.**—Derscheid and Toussaint are of the opinion that collapse therapy is the most important weapon against laryngeal tuberculosis. The best way to treat the larynx is to give attention to the lung which infects it. The authors discuss the value of streptomycin on the basis of six case histories. Streptomycin is effective chiefly against the pain of laryngeal tuberculosis, but there is also a rapid and spectacular regression of the inflammatory lesion. The vegetative lesions are less rapidly influenced; ulcerations react if they are recent and associated with a congestive process. Old destructive lesions remain uninfluenced by this treatment. Since tuberculous infection progresses generally from the bronchi to the trachea, from the trachea to the larynx, through submucous ascending lymphangitis, streptomycin should be applied early, when infection is still localized in the trachea or the laryngeal ventricle, the endoscopic laryngeal field still being normal. Diagnosis is made from the clinical symptoms and on the basis of bronchoscopy. The authors obtained their results with limited doses of streptomycin.

## Klinische Wochenschrift, Heidelberg

### 26:449-480 (Aug. 1) 1948. Partial Index

Functional Pathology of Coronary Insufficiency: Importance of Sympathetic Circulatory Disturbances in Pathogenesis. G. Schimert Jr. —p. 449.
Importance of Lancefield Groups for Etiology and Pathogenesis of Streptococcic Infections in Human Subjects. G. B. Roemer.—p. 453.
*Hypertrophy of Heart and Critical Weight of Heart. A. J. Linzbach. —p. 459.
Hypocholesterolemia in Chronic Undernourishment. G. Schettler and J. Schmidt-Thomé.—p. 463.
Reduction in Capillary Resistance in Hypertension, and Attempted Treatment with Rutin. H. Hein.—p. 466.
*Latent Hepatic Disturbances and Gastroduodenitis as Causes of Identical Syndromes. E. Strehler.—p. 469.

**Hypertrophy of Heart and Critical Weight of Heart.**—Linzbach says that numerous counts made of the muscular fibers of human hearts, varying in weight between 45 and 1,120 Gm., have demonstrated that the normal human heart has a constant number of fibers. The growth of the fibers takes place harmoniously, the relationship between length and width remaining the same. The increase in the mass of the heart muscle as the result of prolonged increase in the beat performance is interpreted as structural adaptation. The critical limit of the structural adaptation is reached at a weight of 500 Gm. Increase in the weight of the heart below this critical limit is brought about completely by the increase in the volume of the fibers (normal growth and physiologic hypertrophy). The average volume of the fibers is proportional to the weight of the heart. Hearts with weights exceeding the critical weight occasionally show a numerical increase in fibers (hyperplasia) in addition to the hypertrophy. In the majority of cases, the late stages of pathologic hypertrophy, beyond the critical weight of the heart, are accompanied by degeneration of groups of cardiac fibers with induration and a compensatory hypertrophy of the fibers that remained intact. This results in shifting in the structural elements of the cardiac muscle and in an eccentric hypertrophy. Such hearts may prove refractory to the action of digitalis.

**Latent Hepatic Disturbances and Gastroduodenitis.**—Strehler shows that the subjective disturbances in latent hepatopathy greatly resemble those of gastritis and duodenitis. Abdominal symptoms are complicated by impairment of the general condition and by psychoneurotic symptoms. The similarity between the symptomatology of these conditions is explained by the fact that gastroduodenitis may interfere with the proper function of the liver and that disorders of the liver may be accompanied by disturbances in the gastric acidity. The function of the pancreas also is frequently impaired in patients with these disorders. On the basis of 6 case reports the author describes the interrelationship of hepatic, pancreatic and gastric disturbances. This syndrome indicates that the gastrointestinal tract with its adnexae, liver and pancreas, forms a functional unit. The treatment of the disorders involving this functional unit requires the exclusion of noxae that have a damaging effect on stomach and liver, the substitution of the lacking digestive ferments, regulation of fecal elimination, a well balanced diet and the rectification of social, familial and occupational problems.

## Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

### 92:2881-2956 (Sept. 18) 1948. Partial Index

Determination of Thiamine Deficiency by Examination of Blood: Thiamine Pyrophosphate Content of Erythrocytes and Leukocytes in Healthy Persons and Patients. E. Florijn and G. Smits.—p. 2891.
*Small Doses of Roentgen Rays in Treatment of Carriers of Diphtheria Bacilli. J. T. van der Werff.—p. 2900.
Toxoplasmosis Combined with Situs Inversus Totalis. S. van Creveld, P. Arons and J. I. de Bruyne.—p. 2903.
Acute Cerebral Tremor in Ataxia in Young Children. A. Dekker-Jonker.—p. 2912.

**Roentgen Irradiation for Diphtheria Carriers.**—Van der Werff used this method in the course of the last four years in 110 patients with diphtheria in whom bacilli still persisted three weeks after the acute phase of the disease had taken its course. He uses 200 kilovolts, 6 milliamperes, and 0.5 mm. copper filter and a focus-skin distance of 40 cm. The irradiation is applied first on one side and the following day on the other side. With this treatment 90 per cent of the carriers became negative within two weeks, whereas of the patients not so treated only 30 per cent became negative during this period.

## Nordisk Medicine, Stockholm

### 39:1663-1702 (Sept. 17) 1948. Partial Index

Indirect Roentgenologic Signs in Diagnosis of Ulcer. F. Hirschberg. —p. 1663.
*Diagnostic BCG Reaction in Sarcoid of Boeck. N. Danbolt.—p. 1668.
BCG Vaccination According to Rosenthal: Preliminary Report. E. Eilertsen.—p. 1671.
*Tuberculin Reaction with Ordinary Pirquet, Adrenalin-Pirquet and Mantoux Tests. O. M. Andenaes.—p. 1676.
Tuberculin Test According to Trambusti. P. Sallinen.—p. 1682.
Pulmonary Aspergillosis. Å. Nordén.—p. 1683.

**Diagnostic BCG Reaction in Sarcoid of Boeck.**—Danbolt states that the preliminary results of the diagnostic BCG reaction in 19 patients with sarcoïd of Boeck do not support the view that the disease is of tuberculous nature. Many of the positive Mantoux reactions obtained in patients with the disorder must be assumed to be of unspecific kind.

**Tuberculin Reaction with Ordinary Pirquet, Epinephrine-Pirquet and Mantoux Tests.**—Andenaes attributes errors in tuberculin testing to the tuberculin preparation used and to mistakes in measurement and in determination of positive results. His survey indicates that the Pirquet test with highly potent tuberculin and addition of epinephrine is nearly as sensitive as Mantoux with 1 mg. He concludes that BCG vaccination of young persons is allowable after a single negative reaction to an epinephrine-Pirquet test; no complications were reported after some two hundred BCG vaccinations.

## Presse Médicale, Paris

### 56:689-700 (Oct. 2) 1948

Electrophoresis and Its Clinical Application. E. Benhamou and J. Pugliese.—p. 689.
Posterior Radicotomy in Treatment of Angina Pectoris. J. Guillaume and G. Mazars.—p. 690.
*Does Employment of Universal Donors Involve Danger? M. P. Robert, P. H. Bonnel and H. Perrot.—p. 691.

**Dangers From Universal Donors.**—Robert and his associates call attention to the fact that American authors in 1946 demonstrated that when plasma from universal donors has a high agglutinin content, it is likely to cause severe reactions when injected in sufficient quantities (250 cc.). On the basis of their studies the authors conclude that blood transfusion from universal donors introduces into the recipient foreign agglutinins, which are rapidly neutralized, since they are no longer detectable in the vein after a passage of only 20 cm. The agglutinins are fixed by the plasma but also by the erythrocytes, which collect in clumps sometimes of considerable volume. Ordinarily no clinical accident results, but the agglutination is accompanied by a certain amount of hemolysis which is harmful to anemic patients and to those who are weakened and in poor condition. Consequently, in patients of this type it is advisable to employ blood donors of the same group and avoid universal donors with high agglutinin titers.

## Revista de Tuberculosis del Uruguay, Montevideo

### 16:85-138 (June) 1948. Partial Index

*Suppurating Lymph Node Complications of BCG Vaccination: Rosenthal Technic. P. Cantonnet Blanch, H. Cantonnet Blanch and A. Perez Seremini.—p. 85.

**BCG Vaccination.**—Cantonnet Blanch and collaborators report 12 cases of suppurating lymph nodes complicating BCG vaccination administered by the Rosenthal technic. The reactions consisted of local, single or multiple abscesses, infarction of lymph nodes with consequent abscess formation and fistulization, and mediastinal, inguinal and supraclavicular abscesses. These different types of abscess formation have a long course and characteristics of a tuberculous abscess. They leave scars like those of tuberculous abscesses. In some cases single or multiple abscesses appear eight or more months after vaccination.

# Book Notices

***The Therapy of the Neuroses and Psychoses: A Socio-Psycho-Biologic Analysis and Resynthesis.*** By Samuel Henry Kraines, M.D., Assistant Clinical Professor in Psychiatry, University of Illinois, College of Medicine, Chicago. Third edition. Cloth. Price, $6.50. Pp. 642, with 6 illustrations. Lea & Febiger, 600 S. Washington Square, Philadelphia 6, 1948.

This, the third edition of Kraines' text, is a well bound, clearly printed, impressive tome which, to all external appearances, seems to justify the mathematician Hodgson's delightful dictum in the Hunting of the Snark: "Anything I *tell* you *three times* is true!" A survey of the preface and the table of contents further heightens the reader's expectations, since he learns that sections on "psychiatric geriatrics," prefontal lobotomy, group psychotherapy and epilepsy have been added, and that the material of previous editions (which, as earlier reviews in THE JOURNAL have pointed out, greatly needed revision) has indeed been "thoroughly revised." Unfortunately, as was the case in these previous editions, actual perusal of the text will again tend to misguide the naive reader and to disappoint the informed one. Here are sample excerpts:

Page 26: "Thus, schizophrenia may be said to occur because of constitutional inadequacy"—a highly dubious assertion but made here almost without qualification.

Page 29: "Psychoneurotic symptoms are better described individually by the terms tension, or symbolism or their combination rather than by attempting to group them arbitrarily"—a statement that achieves meaning only when translated freely and charitably. But charity comes hard when the reader learns further (p. 30), "The symptoms presented by the patients suffering from psychoneuroses may be those of a state of general 'psychological' tension or of focal tension (stretched, overly active) of the autonomic nervous and other related systems."

Page 176 offers a typical sortie into empty polemics: "While it appears quite clear to the author, that environmental forces are the essential molding forces of each particular constitution, the psychoanalysts on the other hand insist that there are 'deeper' reasons for adult neuroses."

Again, on page 107, in explaining "the technique of changing attitudes," Kraines' pen seems to have been guided by the shade of Coué: "The patient was to say to herself, 'those old attitudes were immature; I shall try to feel and act according to these new attitudes.'"

On page 490, Kraines begins the most dangerously misleading section in the book by stating, "The contraindications to convulsive shock therapy are few indeed . . . (p. 502), the same shock treatments may be given in selected cases in the office [and] the physician can give the treatment alone [*sic*]." Finally, page 578 introduces perhaps the most inaccurate and garbled "exposition" of psychoanalysis since Joseph Jastrow.

It would not be fair to Kraines to conclude from these quotations and comments that his entire text is an arid waste, difficult to plow with furrowed brow and woefully infertile in yield. On the contrary, there are sections that reflect Kraines' undoubted experience and his sincere attempts to communicate his clinical intuitions. Even in these, however, his verbiage, as may be seen in the samples quoted, is so inexact and his reasoning so often slipshod that the reader cannot help but agree with the semanticist Witgenstein that unclear expression bespeaks hazy observation and unscientific interpretation. With such major defects, it seems unnecessary to add that the volume as a whole is padded, repetitive, poorly organized and almost devoid of documentation. Perhaps, however, those of us who have become a bit discouraged while waiting for a text that will do justice to modern clinical psychiatry can take heart from yet another one of Kraines' gems of dialectic (p. 3): "Probably the most important element in therapy, becoming more evident as one seeks the similarities among the differences, is the sustaining, driving, curative therapy of hope. . . ."

**Dictators and Disciples from Caesar to Stalin: A Psychoanalytic Interpretation of History.** By Gustav Bychowski, M.D. Preface by Carl Binger, M.D. Cloth. Price, $4.25. Pp. 264. International Universities Press, 227 W. 13th St., New York 11, 1948.

In this book Bychowski attempts to interpret the life and times of Julius Caesar, Oliver Cromwell, Robespierre, Hitler and Stalin according to what the author considers psychoanalytic "insight." The theme of the work is sounded almost immediately (p. 12) as follows:

"The course of Roman history can serve as a perfect illustration of Freud's theory expounded *in Totem and Taboo,* according to which the earliest form of society was marked by a struggle between the primal father of the horde and his sons who banded together in order to overthrow him and divide the females among themselves. Thus, about 1900 years before Freud pointed out this pattern, the Roman king was killed, the Republic was established and its path of development was apparently bound for democracy. However, the collective mind still cherished deep longing for the guiding and ruling parent. In a period of misery and social upheaval, the vortex produced Caesar . . ."

This monothetic approach not only to biography, but to economics, culture and politics, is repeated monotonously throughout the volume. Wherever possible, selected facts about the childhood of each of the dictators are mustered and "interpreted" to support Bychowski's thesis; whenever such facts are unavailable we are treated to priceless examples of bland presumption like the following:

"Knowing nothing of the basic conflicts of [Oliver Cromwell's] childhood days we can at best imagine them. In a boy of a violent disposition, nurtured in an atmosphere of puritan constraint and austerity, processes of forcible and yet insufficient repression of the oedipus complex must have undoubtedly occurred. Such forceful repression of 'wicked' tendencies left behind a visible trace in the shape of a sense of sinfulness and guilt, as well as a recurring fear of death. The latter is undoubtedly linked up with the impulses of pansexualism. The youthful 'sinner' seems to have reached out for salvation . . ."

These are samples enough of a type of psychoanalytic flounderings in biography and history which were popular for a time after the publication of Freud's quasisociologic writings two generations ago; today most psychoanalysts have discarded the naiveté of earlier formulations and have come to appreciate, along with their fellow social scientists, the almost incredible complexity of the determinants of human history. Dr. Bychowski's book is therefore recommended only to those who are still interested in a narrowly cultist approach to this field.

**Sexual Endocrinology of Non-Mammalian Vertebrates.** By L. H. Bretschneider and J. J. Duyvené de Wit in collaboration with Dudok de Wit and others. Monographs on the Progress of Research in Holland During the War. Editorial Board: R. Houwink and J. A. A. Ketelaar. Paper. Price, $2.75. Pp. 146, with 96 illustrations. Elsevier Publishing Co., Inc., 215 Fourth Ave., New York 3, 1947.

Chapter 1 records the effects of various substances added to the water of the aquarium on the growth of the ovipositor tube of a small fish, the bitterling. Various substances give characteristic curves when onset and rate of growth are plotted against time, and the test can be made quantitative. Steroid hormones have especially low thresholds; 4 to 6 micrograms of progesterone, for example, produce measurable growth in less than five hours. Extracts of human corpora lutea gave curves resembling those of pure progesterone. Unfortunately, the only basis for seriating them was the clinical history. Four which were removed during menstruation gave as high values as the average of all cases in which the results were positive. A pair of ovaries from a full term infant showed as much progesterone per gram of tissue by this test as any of the corpora lutea. The test cannot be used for the diagnosis of pregnancy, since urine from some nonpregnant women gave as high values as those from the pregnant.

Chapter 2 deals with the histophysiology and comparative anatomy of the hypophysis and hypothalamus. The conclusion is drawn that the hypophysis activates the ovary and that atretic follicles secrete the hormone which induces growth in the ovipositor because (*a*) extracts of fish hypophysis injected during the sexually inactive time of year bring about an increase in the number of atretic follicles and also ovipositor growth; (*b*) during the breeding season the number of atretic as well as normal follicles reaches a maximum, and (*c*) after ovariectomy the steroid hormones do not stimulate the ovipositor. It is stated that they do not act directly on the ovaries but operate through the hypophysis. This is apparently based on a single successful total hypophysectomy. The length of time that this fish survived the operation is not stated.

Chapter 3 gives an account of oogenesis and of follicular atresia in the bitterling. On the assumption that the atretic rather than the normal follicules produce the ovipositor-stimulating hormone, there is an extensive discussion of the "preovulatory" and the "postovulatory" corpus luteum in the various groups of vertebrates.

Chapter 4 presents data on the reproductive physiology of the bitterling, of two species of viviparous fishes and of the common toad.

**The Treatment of Rheumatism in General Practice.** By W. S. C. Copeman, O.B.E., M.A., M.D., Physician in Charge, Department of Chronic Rheumatic Diseases, West London Hospital, London. Fourth edition. Cloth. Price, $4. Pp. 264. William Wood & Co., Mt. Royal & Guilford Aves., Baltimore 2, 1946.

In his preface, the author states that this book is written for the benefit of the general practitioner. Many subjects are covered under the title of acute and chronic rheumatism which cannot be called rheumatic, such as chorea, sciatica, neuritis and gout. However, the discussion of these subjects has some merit in a small volume if the reader does not assume that sciatica is a disease. In general the book should be considered as an adjunct to a lot of other published knowledge.

There are some statements with which the reviewer does not agree; for example, he does not agree that growing pains are one of the first signs of rheumatism in a child. If this were the case, the United States would have a large population of children with endocarditis. It would also seem far afield from rheumatism to call "frozen shoulder" and subacromial bursitis fibrositis. Usually the frozen shoulder is a result of "bursitis" of the subacromial bursa. A great many doctors believe, however, that tendonitis of the suprascapular tendon is the source of such lesions.

A good deal of the therapy described in the book is based on many drugs which are probably not very useful in curing the disease. The section on diet and physical therapy is too sketchy, and the reviewer cannot agree that putting an arthritic joint through its full range of motion is sound therapy.

On the whole, there is much in this book which is of value to the profession in general.

**Roentgen Studies of the Lungs and Heart: A Series of Lectures Delivered at the Center for Continuation Study, University of Minnesota.** By Nils Westermark, M.D., Director, Department of Radiology, St. Göran's Hospital, Stockholm, Sweden. Edited by Leo G. Rigler, M.D., Professor of Radiology, University of Minnesota. Cloth. Price, $7. Pp. 216, with 98 illustrations. University of Minnesota Press, Minneapolis 14; Oxford University Press, Amen House, Warwick Sq., London E.C. 4, 1948.

As the editor states in his introduction, "such a series of original papers does not exhibit a systematic or well rounded presentation of the roentgen diagnosis of diseases of the thorax, nor is any such presentation intended. Rather this is a series of loosely connected studies united chiefly by the manner in which the author interprets his findings in the light of the physiology and pathology of the respiratory and circulatory systems."

The author discusses in detail the various technics which he employs. Emphasis is placed on fluoroscopy, for study of the respiratory movements, observation of the effect of varying intrathoracic pressures and the selection of the projections in which the roentgenograms are to be made. In Sweden roentgenograms are always made under fluoroscopic control. To insure comparable films the same intrabronchial pressure is used for all examinations. To obtain this a water manometer is connected to the patient's mouth. If necessary roentgenograms are also made in different phases and with different intrabronchical pressures. The value of the roentgenograms made with different intrabronchial and intra-alveolar pressures depends on the effect on heart size and the filling of the pulmonary vessels. The author has subjected a series of 15,000 patients to examinations under both normal and high intra-alveolar pressures. He finds that there is a definite difference evident in pulmonary stasis, pulmonary edema and acute pneumonic changes. There is little or no change in chronic inflammatory disease or in tuberculosis.

There are chapters on the roentgen diagnosis of pulmonary emphysema, bronchial tuberculosis, primary tumors of the lung and pulmonary embolism. There is a comprehensive table and series of diagrams listing the various diagnostic features in bronchostenosis and their changes with the progress of the disease, which he divides into four stages. In stage I the affected lung area shows a decreased radiability on inspiration; in stage II the area will appear normal on inspiration but will appear relatively emphysematous on expiration; in stage III emphysema is evident in both phases, while only in stage IV does the atelectasis become evident.

In the final chapter there is a discussion of the mechanics of circulation and the author's experimental methods of simultaneous roentgen cinematography and electocardiography. These studies were performed by injecting colloidal thorium dioxide (thorotrast®) into the circulatory system of rabbits. His concept of the filling and emptying of the cardiac chambers is not in complete agreement with the opinion generally held. However, the method of study is new, and possibly more accurate than previous approaches.

**Die Lungentuberkulose beim Erwachsenen: Klinik und Therapie für die Praxis.** Von Dr. Hermann Weber. Second and third editions. Fabrikoid. Pp. 417, with 259 illustrations. Grune & Stratton, 381 Fourth Ave., New York 16; Wilhelm Maudrich, Spitalgasse 1 B, Vienna IX/2, 1948.

Under clinical examination are good presentations of the patient's history and the conventional physical examination. Other phases of the examination are included, such as various methods of searching for tubercle bacilli, including cultural methods and animal inoculation. Several pages are devoted to the study of the patient's blood with reference to sedimentation rate, complement fixation reaction and methods of searching for tubercle bacilli in the blood.

The evolution of tuberculosis in the human body is discussed in its various phases, from the development of the primary complex to its most advanced and destructive phases, including both acute and chronic forms. An especially good chapter is devoted to nontuberculous pulmonary conditions, including cancer, syphilis, tularemia, psittacosis, bronchiectasis, cystic disease and sarcoidosis. Four pages are devoted to allergy in tuberculosis.

The second section of this book includes treatment. Various preparations, such as calcium, copper, gold, tuberculin, sulfonamide compounds and penicillin, are discussed, but no mention is made of the sulfones or streptomycin. The numerous attempts to immunize against tuberculosis by such workers as Koch, Friedmann and Calmette are included.

Under collapse therapy over 25 pages are given to artificial pneumothorax. Various other collapse procedures are discussed at considerable length, such as pneumonolysis, extrapleural pneumothorax, oleothorax, phrenemphraxis and thoracoplasty. Physicians devoting themselves to chest diseases will find much valuable information in this book.

**Handbuch der Therapie: Therapie des praktischen Arztes in Einzeldarstellungen.** Herausgegeben von Prof. Dr. T. Gordonoff. Lieferung I: Vitamine und Vitamin-therapie. Bearbeitet von Prof. Dr. med. Emil Abderhalden und Prof. Dr. med. Georges Mouriquand, Direktor der Kinderklinik (Hôpital Edouard Herriot) der Universität Lyon, Lyon. Paper. Price, 28 Swiss francs. Pp. 408, with 44 illustrations. Hans Huber, Marktgasse 9, Bern, 16, 1948.

The book is divided in two sections. The first, "Experimental Vitamin Studies," comprising 188 pages, is written by Abderhalden. The theoretic discussion is well written and well documented. The author has had access to American as well as European literature. This section includes not only discussion of each of the established vitamins, but also of the essential amino acids and fatty acids. The 44 illustrations include many clinical cases of vitamin deficiency.

Section II, "Therapy of Hypo- and Avitaminoses," is written by Mouriquand. This section was written for the practical guidance of the physician. It is not illustrated and has no bibliography, though investigators often are referred to by name. The etiology of the given avitaminoses, the effect of other disease entities on the requirement for the given vitamin, the type of vitamin preparations available and the dosage of each are discussed in detail. Each of the chapters on thiamine, ascorbic acid and vitamins A and D covers more than 30 pages. This section is interesting particularly as a means of comparing European and American thinking as well as therapy in diseases involving vitamin metabolism.

# Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

## ANTICOAGULANTS AND PROTAMINE INSULIN

*To the Editor:*—Are there contraindications to the use of anticoagulants for thromboembolic disease in diabetics? Physicians state that heparin is not effective or is contraindicated because of the neutralizing effect of protamine zinc insulin. Does protamine zinc insulin given subcutaneously have the same neutralizing qualities on heparin as protamine sulfate given intravenously? Does heparin alter the subcutaneous deposit of protamine zinc insulin so as to influence insulin utilization?

Peter C. Posatko, M.D., Plains, Pa.

ANSWER.—Both heparin and "dicumarol" may be used in diabetic persons if the same care is observed in the selection of patients as with nondiabetic persons and if the same caution is used in the administration of the drugs together with appropriate laboratory studies.

Evidence is not available to indicate that heparin is not effective or is contraindicated in a patient receiving protamine zinc insulin. One authority states that most observers who have worked with protamine as an antidote for heparin believe that it is effective approximately milligram for milligram. Since protamine zinc insulin provides only 1.25 mg. of protamine per hundred units, the amount of heparin neutralized would not be significant in comparison with the total amount of heparin usually administered. It would appear unlikely that protamine zinc insulin given subcutaneously would have the same neutralizing effect on heparin as protamine sulfate given intravenously.

No accurate information is available to indicate whether or not the administration of heparin alters the effectiveness of protamine zinc insulin given subcutaneously. It is doubtful, however, that in actual practice heparin would influence the insulin effect to any significant degree.

## BURNING OF THE LIPS

*To the Editor:*—A 63 year old white woman complains of burning and dryness of the lips and extreme nervousness. Physical examination shows considerable dryness of the lining of the lips with several areas suggesting small petechial hemorrhages with a suggestion of formation of bullae. Once during a period of four months' observation she had a shower of petechiae all over the body. Investigation at that time showed normal platelet count, bleeding time, coagulation time, hematocrit reading and complete blood cell count. She responded to a course of "rutorbin" (rutin and ascorbic acid in proportion 1:5). However, the lip findings have not changed. She has been treated with prolonged high vitamin B dosage both parenterally and orally and nicotinamide without symptomatic relief. The antihistaminic drugs have been tried both orally and locally without benefit. Allergy diets have also been used without benefit. There are some definite neurotic trends in this patient, and she probably has a mild psychoneurosis. However, the fixation of complaints of the lips is puzzling. Please suggest diagnosis and treatment.

M.D., Texas.

ANSWER.—From the description given, the main complaint of this patient seems to be the burning of the lips. One would think of a psychogenic basis for her complaint. The burning of the lips probably corresponds to the more frequently seen burning of the tongue, commonly called glossodynia. As stated by Sulzberger and Zaidens (*M. Clin. North America,* 32:669-685 [May] 1948), these patients often suffer from cancerophobia. For some unknown reason, this condition occurs most frequently in women, and usually about the time of menopause.

Alvarez (*Postgrad. Med.* 4:96-101 [Aug.] 1948) believes that burning in the mouth without any local symptoms is sometimes due to a little stroke. This symptom is commonly seen in the cases of women around the age of 50.

The petechiae seen at one time probably are part of a general petechial eruption. These changes do not seem to bear any relationship to the burning, except that the dryness may have been a factor in localizing her complaints. A consultation with a dermatologist might be indicated to exclude the possibility that this woman is suffering from some specific dermatologic condition such as lichen planus of the lip.

Therapeutically, these patients are a difficult problem. One should investigate the psychologic factors. General supportive measures, iron, liver extract and vitamins are often prescribed, but are usually not of particular help. This patient probably will need consultation with a psychiatrist.

## PARALYSIS FOLLOWING TETANUS ANTITOXIN

*To the Editor:*—During May 1948 a young, white American farmer, aged 27 years, requested antitoxin against tetanus. A few days before he had stepped on a nail in the barnyard. His foot was somewhat painful and tender to touch. Examination revealed a small tender area at the point of entrance of the nail. Tetanus antitoxin, 1,500 units, was given. In about fifteen minutes a severe case of pruritus and hives developed. Ephinephrine was given hypodermically and tripelennamine hydrochloride, 50 mg., prescribed for four doses daily for a week. At the end of one week neuritis of the right arm and forearm developed. Tripelennamine hydrochloride in the same dosage as before controlled the symptoms. About six weeks after the injection of tetanus antitoxin a distinct flaccid paralysis of the right biceps muscle with cutaneous sensory changes of the forearm occurred. The injection did not hit the nerve, I am sure, as it was not given in the area of the nerve. Four months later there is a distinct paralysis of the right musculocutaneous nerve. The biceps muscle is flaccid and useless. It is about ¾ inch (1.9 cm.) smaller in diameter than the opposite biceps when measured with the elbow extended. A search of the literature does not reveal any similar cases. At present the patient is receiving a high vitamin diet with instructions not to use the arm too much in heavy lifting as it is feared that the injured muscle might be made worse. Will full recovery occur?

M.D., California.

ANSWER.—A uniform type of paralysis of the upper extremities, usually confined to the right, and frequently involving only muscles of one shoulder, was described in this country by Ayer in 1935 (*J. Nerv. & Ment. Dis.* 81:676-682 [June] 1935). He reported 5 cases of paralysis following antitetanus serum seen within a period of one year. Analysis of the literature at that time yielded 40 reports of cases, mostly from France. Ayer's patients presented a similar picture, the paralysis coming on suddenly or rapidly during or just after the height of serum sickness, preceded by excruciating pain involving more nerves than were subsequently paralyzed. The paralysis, either mild or complete, followed root distribution but was most conspicuous in the muscles supplied by the fifth cervical root, principally the deltoid and biceps. The amount of protein in the cerebrospinal fluid was above normal in 1 case.

The site of the paralysis was not clearly related to the place of injection. In Ayer's series 1 patient had the serum injected under the left breast, but experienced paralysis in the right arm; another had paralysis of the right arm after injection in the buttocks. In the 3 other patients, however, paralysis developed in the arm receiving the injection.

The paralyzed muscles showed a partial reaction of degeneration. Atrophy and paralysis were often marked in contradistinction to the almost normal electrical changes. Sensory symptoms were minimal, except for the explosive initial attack of pain. The prognosis was considered uniformly good for complete restoration of function.

Bennett added 5 more cases in 1939 (THE JOURNAL 112:590-596 [Feb. 18] 1939) and gave a thorough review of the literature, pointing out that the first accurate case report was made by Gangolphe in 1908 in France (*Lyon méd.* 110:497-499, 1908), while Richardson reported the first American case in 1917 (THE JOURNAL 68:1611-1612 [June 2] 1917). Bennett's paper contained illustrations showing the atrophy. An excellent general review of the neurologic complications following the administration of vaccines and serums in general was given by Robinson in 1937 (*New England J. Med.* 216:831-837 [May 13] 1937).

The condition was briefly described by Osler, under serum sickness and neurologic symptoms after tetanus antitoxin, as follows:

> "More disturbing are the severe neurological disturbances that occasionally ensue to persist for several months and then, as a rule, clear up. Paresis or paralysis in the distribution, unilaterally, or bilaterally, of the brachial plexus is particularly frequent, but disturbance in other peripheral nerve groups occurs."

## COBRA VENOM FOR RHEUMATOID ARTHRITIS

*To the Editor:*—What is the consensus relative to the use of cobra venom in treatment of rheumatoid arthritis? Is this treatment contraindicated when gold injections are given for this type of arthritis?

M.D., New York.

ANSWER.—Talkov and Bauer (*New England J. Med.* 228:152-154 [Feb. 4] 1943) concluded "that cobra venom is of no value for the relief of pain associated with rheumatoid arthritis." Previous reports of varying degrees of benefits were said to have been based on observations of small groups of patients and on reports lacking in sufficient detail to allow critical evaluation of results. The present consensus of most rheumatologists is that preparations of cobra venom are of doubtful value or of no value in the treatment of rheumatoid arthritis. However, to answer the inquirer, there would appear to be no pharmacologic contraindication to the concomitant use of this substance and gold salts in the treatment of this disease.

## RABIES PROPHYLAXIS

*To the Editor:*—In the October 30, 1943 issue of The Journal an article on the prophylaxis of rabies concluded, from experimental evidence, that 20 per cent soap solution or even tincture of iodine was superior to fuming nitric acid. Is this sufficiently well accepted so that we may use it instead of the time-honored nitric acid? M.D., Massachusetts.

ANSWER.—The literature does not indicate that nitric acid is no longer used exclusively in cleansing human wounds from dog bites. The Illinois Department of Public Health, where the work described in the article was done, recently recommended (*Chicago M. Soc. Bull.* 50:102 [Aug. 16] 1947) that "the wound be cleansed immediately and thoroughly washed with soap and water. Cauterization of the wound with nitric acid should then be carried out by a physician." Thorough cleansing of the wound with soap, preferably green soap, and water is however always urged, before any local antiseptic or caustic is applied. The article deals only with experimental rabies (Shaughnessy, H. J., and Zichis, J.: Prevention of Experimental Rabies, J. A. M. A. 123:528 [Oct. 30] 1943). Because we have no practical method of determining whether the virus of rabies is present in a human wound, it cannot be determined which method is most effective in cleansing such wounds of rabies virus.

## DISTANT METASTASES OF CANCER OF THE CERVIX

*To the Editor:*—Does carcinoma of the cervix metastasize to the breast? How often does this occur? Frederick Falkson, M.D., Walden, N. Y.

ANSWER.—Distant metastases from squamous cell carcinoma of the cervix are being more frequently reported since these tumors have been treated with irradiation. The reason for this is that the primary lesion is held under control so that the patient lives long enough for the metastases to occur. Metastases to cervical nodes seem to be more frequent. However, they are often reported in the axillary nodes, brain, lung and osseous system. Extension could occur in the breast, though these incidences are rare.

## STERILITY AND HORMONE DEFICIENCY

*To the Editor:*—What gland extract will assist a young woman in becoming pregnant? MD., Pennsylvania.

ANSWER.—There is no simple "gland extract" which will assist a woman to become pregnant. A complete examination must be made to determine whether or not there is any glandular deficiency, and, if there is, one or more glandular products may be prescribed. It must be remembered that when there is a gland deficiency, it is not always easy to correct it. If, however, there is a lack of thyroid, replacement therapy usually helps.

## EPILEPSY AND ALCOHOL

*To the Editor:*—A man aged 26 with grand mal epilepsy who has been well controlled for the past two years with diphenylhydantoin sodium has recently been given an automotive driver's license after electroencephalograms. May he now take an occasional social cocktail or two?

Willis P. Baker, M.D., Santa Ana, Calif.

ANSWER.—In general, alcohol and epilepsy do not mix, and the epileptic person who maintains complete abstinence is well advised. In particular, "a cocktail or two" probably would not reverse the good two year record of this patient who continues to take diphenylhydantoin sodium, but he should undertake the experiment at his own risk.

## COLD VACCINES IN CHILDREN

*To the Editor:*—Is the use of prophylactic immunizing injections justified in infants aged 2 or younger for recurrent "colds" or recurrent pneumonia?

M.D., New York.

ANSWER.—"Cold" vaccines and mixed respiratory vaccines are of doubtful value. No known immunization will protect against the etiologic virus of "colds." Their main function is to protect against or reduce the secondary complications due to secondary bacterial invaders. As far as known these vaccines are relatively harmless, and so are worth a trial in the infants over 1 year old that are susceptible to colds. One season's trial should convince the investigator as to their value in an individual patient. It is assumed that other causes of so-called "colds" such as allergens or enlarged adenoids have been eliminated.

The use of the vaccines intradermally is an advantage, as smaller doses are required. Most of the better known pharmaceutical firms make a mixed respiratory vaccine containing streptococci, staphylococci, pneumococci and influenza. It can be started in 0.1 cc. dose and increased 0.1 cc. a week up to 0.3 cc. or 0.5 cc. It should then be given every two or three weeks from September to May. Some children seem to be benefited, while many are not improved.

## BRUCELLOSIS

*To the Editor:*—In the Journal, July 31, 1948 page 1271, a query was published on the diagnosis and treatment of brucellosis. The following comment expresses the unanimous opinion of a group of persons interested in human brucellosis. The answer given in The Journal is misleading. One experienced in the diagnosis of this disease will not question the introductory statement, "The most reliable criteria for the diagnosis of undulant fever are history of patient, clinical symptoms and signs, a positive agglutination test and a positive blood culture," but the implication in the two succeeding statements is misleading, that if agglutinins are absent and the blood cultures are sterile one may depend on the symptoms and a positive reaction to an intradermal test for a diagnosis. Unfortunately, the loose criteria of a vague symptom complex and positive reactions to intradermal tests are being widely employed in the diagnosis of chronic brucellosis. Yet the enthusiasts for skin testing will caution the clinician by stating that the Brucella skin test has no more significance than the tuberculin test as an indication of active disease. This leaves the clinician confused. The skin test is the most abused procedure in the diagnosis of brucellosis. The agglutination test is more dependable when appropriate antigen is used and careful technics employed. Contrary to what is stated in the literature, it is the unusual case of chronic brucellosis in which a blood culture is positive and agglutinins negative. In arriving at a correct diagnosis of brucellosis several factors should be kept in mind: (1) history of exposure to the disease, either directly or indirectly; (2) the association of fever, no matter how low grade, with a vague illness of weakness, aches and pains, sweats and nervousness; the temperature should be taken several times a day; it is unusual to have a bacteriologic proved case with symptoms and have the patient afebrile; (3) a normal or reduced leukocyte count with relative lymphocytosis; (4) the presence of agglutinins, preferably in a titer of 1 to 100 or higher; it is unusual to have demonstrable bacteremia in a case of chronic brucellosis with a lower titer of agglutinins; (5) finally, one should carry out properly conducted cultures of venous blood, recognizing that the absolute diagnosis of brucellosis will have to be made frequently with only the aid of the first three factors. It is doubtful whether enough dependable information accrues from the use of Brucella antigens for skin testing. The patient with acute disease and the seriously ill patient with chronic disease may have negative reactions. The opsonocytophagic test and the skin test are two unreliable procedures for the diagnosis of the sporadic case of brucellosis.

Concerning treatment, the question was not answered with respect to use of para-aminobenzoic acid. This drug is not effective in the therapy of brucellosis. Promising results have been obtained with a combination of streptomycin and sulfadiazine, but such therapy should be reserved for proved cases of brucellosis because both agents may provoke toxic reactions. It is stated in the answer that another form of treatment is the oral administration of sulfadiazine and the intravenous use of human whole blood or plasma. Transfusions of whole blood or plasma should not be taken too lightly. Besides the dangers of reactions, there is the decided risk of transmitting homologous serum hepatitis with either whole blood or plasma. Hepatitis is a much more serious disease than ill defined chronic brucellosis. Wesley W. Spink, M.D., Minneapolis.

## ALLERGY AND MYOPIA

*To the Editor:*—Your answer to the "Allergy and Myopia" in The Journal, September 11 requires some correction and clarification. The answer to the question, "What are the best areas in California for patients with hay fever?" is especially misleading.

True, California is free from the Eastern varieties of ragweed, giant ragweed (Ambrosia trifida) and short ragweed (Ambrosia elatior), but patients sensitive to these will not "almost certainly be free of symptoms in any part of that state." California has the Western ragweed (Ambrosia psilotachya), the bur ragweed (Franseria acanthicarpa) and the slender ragweed (Franseria tenuifolia), all of which are abundant. From observation of hundreds of patients, many of whom are newly arrived from the East, we have noted that patients sensitive to the Eastern variety of ragweed are sensitive as well to the Western variety. By a series of passive transfer exhaustion studies we have proved to our own satisfaction that there is an antigenic relationship between these ragweeds, mainly between the Ambrosia psilotachya and the trifida and elatior. Our unpublished data recently have been verified by Wodehouse (Wodehouse, Roger P.: Patterns of Allergic Sensitization, *Ann. Allergy* 6:358 [July-August] 1948).

In addition, an allergic person, fundamentally, is one who by heredity and other unknown constitutional factors is prone to the development of sensitivity and subsequent allergic symptoms. By moving from one part of the country to another, he certainly does not lose his unusual predisposition. In the case of moving from the East coast to Southern California for his sensitivity to plants with short, sharply limited pollinating seasons he will probably substitute an allergy to plants with prolonged season of pollination. The grass-and-weed-sensitive patient from Chicago or New York on moving to Los Angeles will probably in time have symptoms lasting continuously from February through November, rather than the comparative short episodes of symptoms in the summer and fall.

Norman Shure, M.D.,
M. Coleman Harris, M.D.,
College of Medical Evangelists, Los Angeles.

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# DISCONTINUOUS THERAPY WITH PENICILLIN

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Virtually all of the clinical experience with penicillin has been obtained with dosage schedules which provide what is generally referred to as "continuous therapy." Continuous therapy has come to mean the maintenance at all times of drug concentrations in the patient's blood equal to or greater than the concentration which inhibits growth of the infecting organism in vitro. The commonest method of providing continuous treatment utilizes frequent doses of penicillin administered at short intervals. The other commonly used method employs forms of penicillin which are slowly absorbed from the site of injection. Both of these types of dosage schedule are relatively simple and practicable. Each has certain disadvantages, although these disadvantages have not been considered of importance in view of the therapeutic effectiveness of the drug.

Despite the fact that continuous treatment with penicillin is obviously highly effective, there is no proof that it is necessarily the most desirable or the most practicable form of therapy. Since all of the conventional dosage schedules now employed are based on the concept that continuous treatment is optimal treatment, it has been of interest to review the basis for this concept. Only a brief summary need be presented here, since a complete review of the evidence for and against the validity of this concept has recently been published by Marshall.[1]

Prior to the development of the sulfonamide drugs, the few effective agents available for chemotherapy of infections—for example, the arsenical drugs and quinine—were commonly administered at relatively infrequent intervals. With the sulfonamide drugs, the concept arose that in the treatment of a given infection there exists a particular concentration of drug which may be called the "therapeutic level." Lower concentrations than this were considered less effective and higher concentrations no more effective. Whether or not this concept is valid for the sulfonamide drugs, it has been useful in the administration of the different sulfonamide drugs, which vary considerably in absorption, degrees of acetylation and toxicity. The application of these same principles to the use of penicillin was undoubtedly due, in part, to the general acceptance of these principles as fundamentally sound and independent of differences in potency, toxicity and mode of action among different drugs. Another important influence has been that the measurement of penicillin in the blood has constituted the only rapid means of evaluating different dosage schedules and dosage forms. Although this method has been extremely valuable, its widespread use has tended to attach to the levels themselves a certain intrinsic significance which appears unwarranted.

It is apparent, however, from a review of several early reports on the use of penicillin that some investigators were clearly of the opinion that continuous treatment was not necessary, although they used it for economic reasons, which at that time were of prime importance. Moreover, there are reports of several experimental studies and a few clinical reports to support this opinion. Of particular interest are the studies of the treatment of infections in experimental animals reported by Jawetz[2], White, Lee and Alverson[3], and Zubrod.[4] At least six clinical reports contribute additional evidence.[5] In an extensive and carefully documented study reported in 1944, Tillett and his associates[5a] concluded that satisfactory therapy in pneumoccoccic pneumonia was attained with doses of 10,000 to 25,000 units four times a day. They pointed out that intervals of twelve to sixteen hours could elapse between doses without altering the favorable results. In a study of the oral use of penicillin in pneumonia, Bunn and his associates[5b] omitted the doses of penicillin at night in some patients as soon as it became apparent that defervescence was occurring.

From these and other observations, it appeared that the conventional dosage schedules of penicillin, although therapeutically effective, were based largely on an unproved assumption. Moreover, the problems created several years ago by limited supply and high cost of penicillin are now either nonexistent or becoming

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This study was aided in part by grants from the Lederle Laboratories Division, American Cyanamid Co., Pearl River, New York; and from Charles Pfizer and Co., Inc., Brooklyn.

[1] Marshall, E. K., Jr.: The Dosage Schedule of Penicillin in Bacterial Infections, Bull. Johns Hopkins Hosp. **82**: 403, 1948.

[2] Jawetz, E.: Dynamics of Action of Penicillin in Experimental Animals: Observations on Mice, Arch. Int. Med. **77**: 1 (Jan.) 1946.

[3] White, H. J.; Lee, M. E., and Alverson, C.: Therapeutic Effectiveness of Single Oral Doses of Penicillin, Proc. Soc. Exper. Biol. & Med. **62**: 35, 1946.

[4] Zubrod, C. G.: Comparative Efficiency of Single and Multiple Dosage Regimens of the Penicillins, Bull. Johns Hopkins Hosp. **81**: 400, 1947.

[5] (*a*) Tillett, W. S.; Cambier, M. J., and McCormick, J. E.: The Treatment of Lobar Pneumonia and Pneumococcal Empyema with Penicillin, Bull. New York Acad. Med. **20**: 140, 1944. (*b*) Bunn, P. A.; McDermott, W.; Hadley, S. J., and Carter, A. C.: The Treatment of Pneumococcic Pneumonia with Orally Administered Penicillin, J. A. M. A. **129**: 320 (Sept. 29) 1945. (*c*) Officer, R.; Loewenthal, J., and Perry, J. W.: Penicillin: An Investigation and Clinical Trial, M. J. Australia **2**: 473, 1944. (*d*) Lourie, E. M.: Ambulatory Treatment of Early Syphilis with Penicillin, Lancet **2**: 696, 1945. (*e*) Bedford, P. D.: Penicillin in General Practice, ibid. **1**: 977, 1946. (*f*) Wheatley, D. P.: Massive Penicillin Doses in General Practice, Brit. M. J. **1**: 530, 1947.

increasingly less important. It seemed of interest, therefore, to investigate further the effectiveness of discontinuous penicillin therapy, employing relatively large doses of sodium penicillin G in aqueous solution administered at intervals of twelve to twenty-four hours. The present report is a summary of the clinical experience thus far obtained with this treatment regimen.

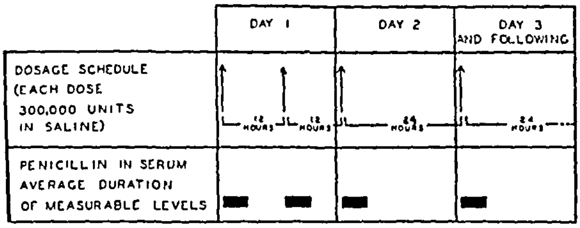
DAY 1
DAY 2
DAY 3 AND FOLLOWING
DOSAGE SCHEDULE (EACH DOSE 300,000 UNITS IN SALINE)
12 HOURS
12 HOURS
24 HOURS
24 HOURS
PENICILLIN IN SERUM AVERAGE DURATION OF MEASURABLE LEVELS

Fig. 1.—Routine schedule with discontinuous penicillin therapy.

The study has been conducted on the Cornell-New York Hospital Medical Service and the Cornell Division of Bellevue Hospital. One part of the study has been limited to a comparison of the clinical results obtained with continuous and discontinuous therapy in a single disease, uncomplicated pneumoccic pneumonia. The other has been an attempt to determine the practicability of a regimen of discontinuous penicillin therapy as a routine for the treatment of a variety of infections, exclusive of those already known to require unusually large doses of penicillin.

## DOSAGE SCHEDULES

In figure 1 may be seen a schematic outline of the dosage schedule which was arbitrarily chosen for discontinuous therapy and which has been used throughout this study. Each dose of penicillin consisted of *300,000 units of crystalline sodium penicillin G in* 1.0 cc. of isotonic sodium chloride solution, administered by intramuscular injection. On the first day of treatment, the patient received two doses of penicillin twelve hours apart. Twelve hours after the second dose, the third dose was given, and from that time to the completion of treatment, the patient received only one daily dose of 300,000 units. As indicated in figure 2, after a single dose of 300,000 units, measurable concentrations of penicillin were present in the patient's serum, on the average, for five hours.

The continuous treatment regimen consisted of a single daily dose of 300,000 units of procaine penicillin in oil,[6] which in a previous study conducted in this clinic[7] was shown to provide continuous low concentrations of penicillin in the blood for twenty-four hours, with more regularity than other dosage forms available at the time. In figure 2 may be seen a comparison of the serum concentrations of penicillin obtained during a twenty-four hour period with these two treatment schedules. As indicated in figure 2, after a dose of 300,000 units in aqueous solution, a high peak is reached within a few minutes. The concentration then falls rapidly and on the average is measurable for five hours.[8] Concentrations sufficient to inhibit pneumococci in vitro are present longer than five hours, but in all likelihood are not maintained as long as eight hours following a single dose of 300,000 units.

The lower solid line in figure 2 illustrates the median penicillin concentrations in the serum as determined in 33 patients after a single 300,000 unit dose of procaine penicillin in oil. As may be seen, the concentrations throughout the twenty-four hour period were relatively constant. Of interest also was the fact that in individual patients decided fluctuations from one time to another were seldom observed.

## TREATMENT OF PNEUMOCOCCIC PNEUMONIA

Each of the treatment regimens previously described was established as the routine for the treatment of pneumococcic pneumonia on one medical ward. Treatment was initiated with this routine in all patients in whom the observations at the time of the original examination made it seem likely that they had uncomplicated pneumococcic pneumonia. During the period of the study, 39 patients received discontinuous therapy, and of these 19 had the characteristic observations of *pneumococcic pneumonia, as determined by* clinical, roentgenographic and bacteriologic examinations. In the same period, 32 patients received continuous treatment, and, of these 21 proved to have pneumococcic pneumonia. For comparison of the clinical results obtained with the two dosage schedules in a disease of reasonably predictable course, the patients with proved pneumococcic pneumonia may be considered as a group and the remainder of the cases discussed later.

Of 19 patients who received aqueous penicillin, 12 were over 50 years of age and 5 were over 70. The oldest patients were 81 and 82. Of those who received procaine penicillin, fewer happened to be in the older age groups, although the average age was 59, as compared with 56 in the other group. Only 2 of the first group had positive blood cultures, as compared with 6 in the second group. Many of the patients had, in addition to the acute infection, some chronic disease which could have compromised their chances for recovery.

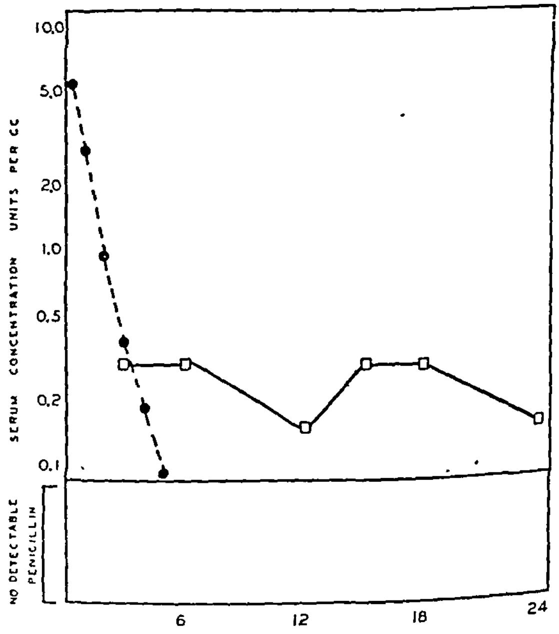

Fig. 2.—Comparison of serum concentrations of penicillin following single doses of aqueous sodium penicillin G and procaine penicillin in oil. The unbroken line represents sodium penicillin G (300,000 units in sesame oil), and the broken line presents sodium penicillin G (300,000 units in aqueous solution). The horizontal row of figures at the bottom shows the number of hours after administration.

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[6] Obtained through the Chas. Pfizer & Co., Inc., Brooklyn.

[7] Goldstein, O.; Shultz, S., and Tompsett, R.: Procaine Penicillin: Serum Concentrations of Penicillin Following a Single Intramuscular Dose, to be published.

[8] Tompsett, R.; Shultz, S., and McDermott, W.: Influence of Protein-Binding on the Interpretation of Penicillin Activity in Vivo, Proc. Soc. Exper. Biol. & Med. 65: 163, 1947.

From observations at the bedside of patients treated with these two dosage schedules, it has been impossible to distinguish any differences in the clinical results in the two groups, in spite of the obvious differences in the type of administration of penicillin. In early observations, impressions were gained that differences existed in the rate of defervescence and in the speed with which various symptoms abated. Further experience, however, has not borne out these impressions, and at present it seems unlikely that there are real differences of this sort between the responses to the two types of treatment.

The most graphic representation of the therapeutic effectiveness of penicillin in a patient with pneumonia has always been the patient's temperature chart. It is of interest, therefore, to compare the temperature curves of the patients receiving crystalline sodium penicillin G with discontinuous therapy with those who received procaine penicillin. For this comparison, calculation has been made of the mean temperature of each group of patients for each day of the first week of treatment. The same calculations were also made in 20 consecutive patients with pneumococcic pneumonia treated during the previous year with 20,000 units of aqueous penicillin intramuscularly every two or three hours. The three composite temperature curves obtained in this way are illustrated in figure 3. In each curve the first point represents the mean temperature of the entire group just prior to the start of therapy. Each additional point is the mean temperature for a twenty-four hour period and is derived from 60 to 120 values. The similarity of these composite curves is even closer than one might have anticipated. The uniformity of the temperature response is even more striking when one considers that it occurs in spite of many variable factors, such as age, nutritional state and various associated diseases, which might influence the response to treatment.

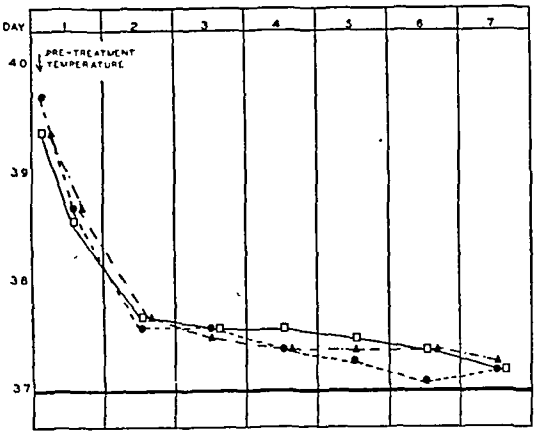

Fig. 3.—Mean temperature with three dosage schedules of penicillin therapy in pneumococcic pneumonia. The broken line represents discontinuous therapy (19 patients); the unbroken line represents procaine penicillin (21 patients), and the line of dots and dashes represents a schedule of 20,000 units every two to three hours (20 patients).

It has been apparent from the outset, however, that it will be necessary to treat large numbers of patients if one is to evaluate accurately the comparative value of discontinuous therapy. In these small numbers of cases, figures on the incidence of complications and death are of little or no value. It is important, however, that a review of these cases of uncomplicated pneumonia include data on all the patients treated, regardless of what the eventual diagnosis proved to be.

In addition to the patients with proved pneumococcic pneumonia, 20 patients on the one ward received a discontinuous treatment and 11 on the other ward received procaine penicillin. All were thought to have uncomplicated pneumococcic pneumonia on admission. In all but 4 cases, the response to treatment and subsequent course were as favorable as in the cases just discussed, and it is probable that the admitting diagnosis was generally correct. They are considered separately solely because of our failue to obtain the complete data required to establish with certainty the diagnosis of pneumococcic pneumonia. The pertinent observations in the remaining 4 cases may be considered briefly.

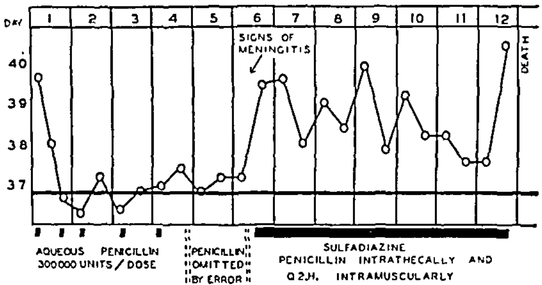

Fig. 4.—Graph of data for a 47 year old man under treatment for pneumonia who had type II pneumococcic meningitis.

Of the 4 patients in whom unfavorable results occurred, 2 received discontinuous treatment. The sequence of events, which was essentially the same in both, is of particular interest. In figure 4 is illustrated the course of a 47 year old man who was admitted with signs of pneumonia. Cultures of blood and sputum were positive for Pneumococcus type II. Although he was seriously ill at the time of admission, his response to treatment seemed prompt and his course at first favorable. On the fifth and sixth days, through an error he received no penicillin. Late on the sixth day he had a chill; signs of meningitis rapidly developed, and he died despite the intensive therapy indicated.

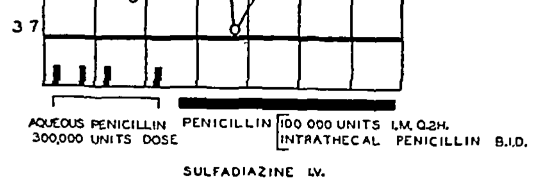

Fig. 5.—Graph of data for a 68 year old woman under treatment for pneumonia who had type III pneumococcic meningitis.

Figure 5 illustrates the course of a 68 year old woman who had pneumonia on admission. Blood culture and sputum culture were positive for Pneumococcus type III. Following an initial period of defervescence, a severe headache developed on the morning of the third day, and within a few hours she had evident signs of meningitis. Despite intensive treatment she died on the seventh day.

The outcome in these 2 patients must certainly be considered as failure of treatment. The question immediately arises as to whether meningitis would have ensued had penicillin been administered with one of the conventional dosage schedules. Unfortunately, it appears, from the available evidence, that none of the penicillin dosage schedules now used in pneumonia uniformly afford protection against the development of pneumococcic meningitis. Nevertheless, the events in these 2 patients suggest the possibility that suppurative complications which occur in patients receiving continuous therapy may occur with greater frequency if discontinuous therapy is used.

During the same period, death occurred in a patient treated with procaine penicillin. This patient was a 56 year old man who was critically ill when admitted on the sixth day of illness. He had signs of pneumonia, and type XXIX pneumococci were isolated from the sputum. He received procaine penicillin, and, although in the first twenty-four hours he appeared improved, he then rapidly became worse. The dosage schedule was then changed to 200,000 units of aqueous penicillin every three hours, but he died late on the second hospital day. Permission for autopsy was not obtained. This case must be considered as a failure of a continuous treatment schedule in pneumococcic pneumonia. Some doubt is cast on the diagnosis, however, by the fact that at the time of admission the blood culture was sterile and the total leukocyte count was only 6,800 per cubic millimeter.

The second patient who was treated with procaine penicillin and who may represent a treatment failure was a 17 year old boy admitted on the third day of illness. At the time of admission, no signs of fluid in the chest were noted on physical examination or in the roentgenogram of the chest. Only eighteen hours later, however, definite signs of a large pleural effusion were present and the diagnosis of empyema was confirmed by thoracentesis. Although empyema may have developed after the start of treatment, it seems likely that it was present at the time of admission, but not detected.

### USE OF DISCONTINUOUS THERAPY IN OTHER INFECTIONS

In the other part of the study, no attempt at simultaneous comparison of dosage schedules was made. Instead, the regimen of discontinuous therapy was instituted as a routine on the Infectious Disease Pavilion of the New York Hospital. Treatment was ordered by members of the resident staff who were free to choose other dosage schedules at the outset or were permitted to change to other schedules if they felt a patient's progress was unsatisfactory. Patients were also seen daily by members of the attending staff, in addition to those conducting the study.

During the fifteen months prior to reporting this dosage schedule proved to be satisfactory for use in the vast majority of patients admitted to this ward. In virtually all patients whose treatment was initiated in this way, the entire course of treatment was completed with no alteration in dosage. In a few instances, when, for one reason or another, it was decided that intensive penicillin therapy might offer added benefit, treatment was changed to doses of 50,000 units or more every two hours. In no patient thus far encountered has this change been of any obvious value. It should be emphasized, however, that discontinuous therapy has not been initiated in patients with such infections as staphylococcic bacteremia and subacute bacterial endocarditis, in whom it may be anticipated that intensive penicillin treatment will be required. These patients, however, make up a relatively small proportion of the total number to whom penicillin is given.

Thus far, this treatment regimen on this ward has been used in a total of 104 patients with a variety of infections. Of this total, 59 patients had the clinical evidences of bacterial pneumonia, and in 25 the diagnosis of pneumococcic pneumonia could be established with certainty. The ages of the patients with pneumococcic pneumonia ranged from 15 to 83 years, the average age being 48. Four had positive blood cultures. The average maximum leukocyte count for the group was 20,300 per cubic millimeter. Seven patients had heart disease, and 2 of these had frank signs of heart failure. In all of these 25 cases of pneumococcic pneumonia, the course under treatment with penicillin appeared in no way to differ from that observed with conventional dosage schedules, and no suppurative complications or deaths occurred. It should be noted that some of these patients received two daily doses of penicillin for more than one day. In only 6 of the 25, however, were two daily doses continued for more than two days. It is of interest, also, to note that in 4 patients only one daily dose of penicillin was given throughout the entire period of treatment.

In addition, 2 patients had pneumonia thought to be caused by group A hemolytic streptococci. In 1 of these it occurred in association with measles. In the other, streptococci were isolated from a small metastatic abscess of the skin. Both patients recovered promptly after treatment was initiated. The only death was that of a 69 year old woman with cardiac failure and chronic renal disease. On admission, signs of pneumonia were present and culture of the sputum yielded only Staphylococcus aureus. After the institution of treatment she rapidly became afebrile, and it was felt that the infection was being controlled. She remained afebrile and had no further leukocytosis, but the signs of cardiac failure and uremia progressively increased. She died on the seventh hospital day, five days after the time of defervescence.

In the remaining 31 patients treated for pneumonia on this ward, the etiologic diagnosis was not established. Patients who proved to have primary atypical pneumonia have been excluded as well as possible from consideration here, and it is felt that from the clinical observations and the response to treatment the great majority probably had pneumococcic pneumonia. In no case did any untoward event occur which was attributed to the possibility that insufficient penicillin was being given.

The remainder of the cases in which it was thought possible to judge the occurrence of a response to therapy included examples of the following infections: hemolytic streptococcic pharyngitis, fusospirochetal infections of the pharynx and buccal mucosa, scarlet fever, erysipelas, cervical adenitis, cellulitis secondary to lacerations or other trauma, pneumococcic tracheobronchitis and generalized staphylococcic pyodermia. In all of these cases, evaluation of the treatment is difficult because of the natural tendency toward spontaneous recovery. It can only be stated that in no instance was progression of disease observed or other events which would seem to denote failure or inadequacy of penicillin therapy.

### DEVELOPMENT OF ANTIBODIES

Studies by Weinstein and Tsao [9] and by Kilbourne and Loge [10] have shown that treatment of certain streptococcic infections with penicillin may prevent the usual development of antistreptolysin. The latter investigators observed also that the discontinuous administration of penicillin interfered to a considerably less extent with the development of antistreptolysin than did continuous treatment. The eventual significance of these differences in relation to the occurrence of late nonsuppurative complications is of great interest. Although of no obvious importance in relation to recovery from pneumonia, it seemed of interest to determine whether there were differences in antibody formation in patients with pneumonia who were treated with different dosage schedules of penicillin. The data thus far obtained on the development of specific agglutinins in patients receiving discontinuous and continuous therapy are insufficient to permit final conclusions on the comparative time of development of agglutinins and the height of the antibody rise in the two groups. Thus far, however, specific agglutinins have been observed in approximately the same proportion of cases in both groups, and no differences in the titer of antibodies are apparent.

### SUMMARY

A study has been made of therapeutic effectiveness of discontinuous penicillin therapy, consisting of one or two daily doses of penicillin in aqueous solution. Since March 1947, this dosage schedule has been used in the treatment of 125 patients with various acute infections, including 44 patients with pneumococcic pneumonia.

From observations thus far made, it appears that this treatment regimen provides entirely satisfactory therapy for the great majority of penicillin-susceptible infections. It should be emphasized, however, that such discontinuous therapy presumably would be inadequate in the treatment of serious staphylococcic infections, bacterial endocarditis and certain other rarely encountered infections which usually require large quantities of penicillin. Moreover, on theoretical grounds, it is possible that discontinuous penicillin therapy might not be the equal of intensive continuous therapy in the prevention of nonsuppurative complications of group A hemolytic streptococcic infections. Finally it should be emphasized that, from the observations in 2 patients with pneumococcic meningitis, the possibility is suggested that certain suppurative complications which occur in patients receiving continuous treatment may occur more frequently if discontinuous treatment is employed. Nevertheless, the clinical results observed in the treatment of pneumococcic pneumonia and other frequently encountered infections indicate that highly effective penicillin treatment may be provided by discontinuous therapy without the rigid restrictions imposed by conventional dosage schedules and dosage forms, which are based on the concept that continuous levels of drug in the body are required. More extensive clinical trial is necessary, however, to obtain a precise evaluation of the comparative value and the limitations of discontinuous therapy.

### ABSTRACT OF DISCUSSION

**Dr. W. W. G. Maclachlan**, Pittsburgh: The present method of continuous regular intramuscular injections has certain disadvantages, chiefly in that it requires someone to give the injections at regular two to four hour interevals. This method has been effective. Dr. Tompsett has presented a procedure of giving penicillin in a fairly large dose at long intervals of time. According to his clinical observations the results in treatment, as compared with the continuous method, are the same. His method simplifies and improves the intramuscular injection method of therapy. Other methods of therapy may also be improved. The probable chief reason why the sulfonamide drugs were so widely and effectively given by physicians was that oral therapy was the method of choice. My associates and I have been interested in treating pneumococcic pneumonia with penicillin by mouth. In the past year we have had cases of severe pneumococcic pneumonia in Pittsburgh, at least, in our clinic. Seventy-four patients were treated by the oral method, while 75 were given the regular three hour intramuscular injection of 25,000 units per injection for a total of 500,000 units, or a little more in some cases. The mortality rate in the group receiving the drug orally was 8 per cent, while that for the group receiving intramuscular therapy was 9 per cent. In 74 patients with bacteremia treated orally with penicillin there was an incidence of positive cultures of 29 or 39 per cent and a 10 per cent mortality rate. In the group treated intramuscularly, 75 patients, 19, or 25 per cent, had bacteremia, with a 15 per cent mortality rate. These figures would indicate that one can freely recommend, to the physician who is distant from hospital facilities, that orally administered penicillin is effective in pneumococcic pneumonia. I give a tablet containing 100,000 units every hour for six doses and then one every two hours for eighteen doses, or 24 tablets, 2,400,000 units in all. This dosage is about four times the amount which had been given by intramuscular injection, which is in keeping with the experimental studies. There is no reason to feel that this oral method cannot be altered. Perhaps it may be susceptible to the same type of change that Dr. Tompsett made in continuous intramuscular therapy. In any case, two methods of simplified penicillin therapy are available.

**Dr. Frederick H. King**, New York: Two facts have become increasingly clear. First, in some infections at least the continuous maintenance in the blood of a so-called therapeutic level during a twenty-four hour period is not essential to the achievement of clinical cure; secondly, the attainment of inordinately high blood levels does not necessarily result in hastening or even insuring a favorable therapeutic result. Moreover, if the hypothesis of Eagle that the production of excessively high levels may paradoxically lessen the effectiveness of the antibiotic should prove to be correct in vivo, then the production of high levels may not only be unnecessary but in fact be undesirable. To the former thesis, namely, that continuous blood level is unnecessary in certain infections, a concept already suggested by previous workers, Dr. Tompsett and his colleagues have brought powerful support. In a negative way, our experience supports the contention of Dr. Tompsett and his co-workers, who, like Marshall, believe that physicians have attached to blood penicillin levels an intrinsic significance which is not warranted. With the aid of carinamide my co-workers and I have been able to maintain for relatively long periods high levels of over 50 units per cubic centimeter and peak levels as high as 300 units per cubic centimeter. However, we have not been successful in demonstrating in clinical trials the superiority of such high levels over levels previously regarded as optimum, though it must be mentioned that we confined ourselves to diseases such as subacute bacterial endocarditis, which is more resistant to therapy than those diseases enumerated in this study. For instance, with such massive doses as 14,000,000 units per day for ten days and the persistently high levels achieved with carinamide, we were able to obtain a clinical cure in only 1, or possibly 2, out of 8 cases of subacute bacterial endocarditis—an experience which convinced us that such a regimen offered no advantage, at least in this disease, over prolonged treatment with smaller doses and lower levels.

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[9] Weinstein, L., and Tsao, C. C. L.: Effects of Types of Treatment on Development of Antistreptolysin in Patients with Scarlet Fever, Proc. Soc. Exper. Biol. & Med. 63: 449, 1946.

[10] Kilbourne, E. D., and Loge, J. P.: The Comparative Effects of Continuous and Intermittent Penicillin Therapy on the Formation of Antistreptolysin in Hemolytic Streptococcal Pharyngitis, J. Clin. Invest. 27: 412, 1948.

Dr. Tompsett: I should like to take this opportunity to disclaim any originality for the principles involved in this therapy. In this study, we felt that we were only attempting *a more extensive demonstration of certain principles which* had already been established. I should like also to suggest that continuous and discontinuous treatment actually may be different in certain rather subtle ways, which may not be so immediately apparent. Kilbourne and Loge recently observed that in hemolytic streptococcic pharyngitis discontinuous treatment interferes with the development of antistreptolysin much less than does continuous treatment. This observation is of interest, particularly in that it may have some bearing on the development of late nonsuppurative complications of this disease.

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# USE AND MISUSE OF ENDOCRINE THERAPY IN STERILITY

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Los Angeles

With the increasing availability of potent endocrine products, these substances have had an extensive range of clinical application. However, despite advances in knowledge of the physiologic relationships of endocrines, clinical therapy has been in many circumstances a "hit and miss" affair. Notably has this been true in the field of infertility, where various of the so-called sex hormones have been employed with extremely variable results. Such variability may be ascribed, in considerable measure, to the complexities of the sterility problem and perhaps to the disproportionate attention to the hormonal factors. In this connection, it cannot be overemphasized that normal fertility in a mating entails a number of important factors, only some of which are disturbed to any clinical extent by endocrine disorders.

The requisites for normal fertility in the female may be summarized as: (1) normally functioning ovaries, in which there is cyclic maturation of a graafian follicle with ovulation and subsequent corpus luteum formation, (2) a normal uterus, reactive to stimulus of the sex hormones, (3) a patent and receptive genital tract, which permits adequate migration of sperm and egg and subsequent travel of the fertilized egg to its site of nidation, (4) protection and nourishment of the developing embryo and (5) safe delivery.

The requisites for normal fertility in the male are: (1) production of adequate numbers of sperm, (2) secretion of a fluid medium favorable for conveyance of sperm, (3) a patent ductile tract, permitting transport of the sperm into the vaginal canal, and (4) adequate performance of coitus.

Despite the fact that considerable attention has been given to endocrine factors in sterility, hormonal disturbances are not the most important cause of involuntary childlessness. Winson,[1] for example, in analyzing a series of 257 cases, found tubal occlusion to be the most important female causative factor, occurring in 54 per cent of the cases. Guerrero[2] found tubal factors in 44 per cent of a large series of women, with hormonal causes occurring in 23 per cent. My observations indicate that endocrine causes constitute only about 20 to 25 per cent of involuntary sterility. This fact must be emphasized since the quantity of endocrine therapy utilized in this particular problem is frequently out of proportion to hormonal etiologic involvement. Accordingly, there can be no substitute for the initial accurate evaluation of the infertile couple or for a thorough investigation to uncover the underlying pathologic condition, whatever that may be. While space does not permit a complete description of what constitutes adequate evaluation, it may be summarized that a routine detailed investigation may require for the wife: a complete history and physical examination, complete blood cell count, determination of the sedimentation rate, urinalysis, determination of basal metabolic rate, blood cholesterol and/or iodine, vaginal smears for hormonal effect, endometrial biopsy, tubal insufflation and/or salpingography, postcoital examinations of cervical and vaginal secretions and studies of basal temperature curves, as well as, on occasions, hormonal assays. In the man, evaluation requires complete history and physical examination, determination of basal metabolic rate, blood cholesterol and/or iodine, repeated semen examinations and, in some instances, testicular biopsies, hormonal assays and studies of the ductal apparatus.

There is no real short cut to a thorough investigation, for most cases of infertility involve more than a single causative factor. After careful and extensive study, indications for endocrine therapy may become apparent, and when such therapy is limited to these cases the inconsistency of results should be substantially reduced.

## ENDOCRINE PHYSIOLOGY IN REPRODUCTION

The functions of all the endocrine glands are undoubtedly interrelated, and hence it would be an erroneous concept to isolate specific glands as those, alone, involved in the reproductive process. However, I shall limit discussion to those hormones the activities of which are most directly concerned with fertility.

According to current knowledge, the gonadotrophic secretions of the anterior pituitary are believed to be the primary controlling hormonal influence on the male and female gonads. In the female, the two gonadotrophic factors, follicle-stimulating hormone (F.S.H.) and luteinizing hormone (L.H.) are said to act in a cyclic manner during the menstrual cycle. During the first half of the cycle the activity of the follicle-stimulating hormone predominates and causes growth and development of the graafian follicles together with secretion of the follicular (estrogenic) hormone. In the second half of the cycle, the luteinizing hormone stimulates development of the corpus luteum and hormonal secretion from this latter structure (figure). The two ovarian hormones, namely estrogenic and corpus luteum, act on the auxiliary sexual apparatus, producing various effects. From the point of view of fertility, the most significant of these are the cyclic actions on the uterus. During the first half of the cycle, estrogenic hormone causes proliferation of the endometrium, and during the second half of the cycle—superimposed on the estrogenic influences—the corpus luteum induces secretory changes in the endometrium, preparing it for nidation. Should pregnancy occur, continued and increased elaboration of hormones from the corpus luteum takes place, and this structure con-

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[1] Winson, S. G.: Am. J. Obst. & Gynec. 56: 631 (Oct.) 1946.

[2] Guerrero, C. D.: Obst. y ginec. latino-am. 4: 208 (March) 1946.

tinues to develop. During the fourth month of pregnancy, however, the placenta largely takes over the production of the three types of hormones; gonadotropes, estrogens and corpus luteum.

In the male, the gonadotrophic hormones are believed to be the same as in the female. Follicle-stimulating hormone stimulates sperm production, and luteinizing hormone stimulates secretion of the male sex hormone. This latter substance, in turn, acts on the secondary sex structures, including seminal vesicles, effecting their normal functions.

It should be noted that production of sperm and production of male sex hormone are related to the pituitary rather than to each other and that, according to current concepts, the male hormone does not act directly on the testes to influence sperm production.

### ENDOCRINE THERAPY IN THE FEMALE

*Failure of Ovulation.*—Probably one of the most frequently treated functional disorders in infertility is failure of ovulation. It has been amply demonstrated that regular cyclic vaginal bleeding in the absence of ovulation can and does occur.[3] However, the frequency of this condition is debatable. There is no completely reliable direct evidence of ovulation other than the actual visualization of a newly formed corpus luteum. The best indirect evidence of ovulation is, of course, the appearance of the premenstrual endometrial biopsy specimen. For practical purposes in the study of sterility, the endometrial biopsy specimen is taken within twelve hours after the onset of the menstrual period, since, if bleeding is awaited, there is little possibility of disturbing a pregnancy. The histologic observation of endometrium in the nonsecretory phase is strongly suggestive of the lack of corpus luteum function and hence lack of ovulation.

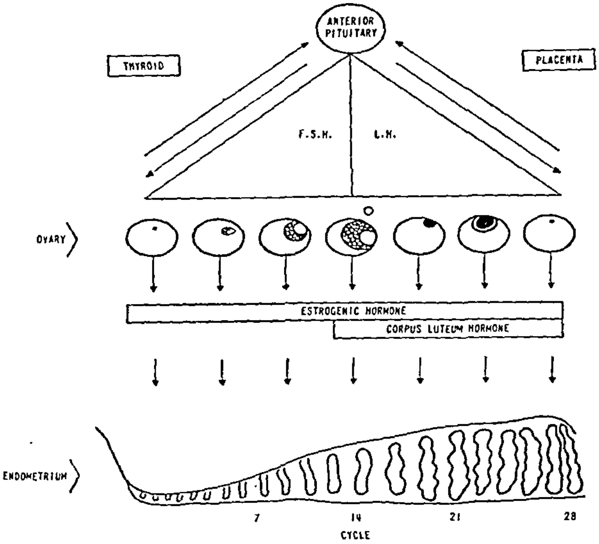
Hamblen,[4] Mazer and Israel[5] and others have pointed out that while the biopsy is in general a reliable test, in interpretation one must always take into account the fact that the endometrium may be refractive to corpus luteum and that, in some cases, ovulation may have occurred even when a proliferative phase endometrium is obtained.

Basal body temperature curves offer good guides to the occurrence of ovulation; in fact, when studied over a number of cycles, temperature curves may furnish more complete knowledge than an isolated biopsy. Tompkins[6] and others have emphasized the biphasic nature of the menstrual curve during the normal ovulatory cycle. The observation of monophasic curves in several cycles is suggestive of repeated anovulation.

Despite the fact that treatment of anovulation is relatively common, there are few statistical estimates of a high incidence of this particular condition. Sharman[7] in 335 endomentrial biopsies found that in only 23 were there definite signs of anovulatory cycles. Mazer & Israel[5] stated the belief that some anovulatory cycles are found in 16 per cent of sterile women, regardless of the primary cause, and in 30 per cent of sterile women in whom no other cause of sterility is found.

Even on the basis of these latter figures, certainly not more than 1 out of every 3 or 4 infertile women would require treatment for anovulation, a fact which must be considered before resorting to any stimulative therapy.

Endocrine therapy of anovulation has not been too successful. Preparations of various pituitary gonadotropins have been used rather extensively with rather conflicting results. The type of preparation which would be expected to prove successful is that containing large amounts of follicle-stimulating hormones. Two types of follicle-stimulating hormone preparations are commercially available, those derived from (1) pregnant mares' serum (P.M.S.) and (2) pituitary tissue. The former group has been more extensively employed clinically. Siegler and Fein,[8] Hall[9] and others have reported some encouraging results with pregnant mares' serum, whereas Geist, Gaines and Salmon[10] and Erving, Sears and Rock[11] stated that they did not believe that this material is effective in inducing ovulation.



Pituitary, ovary and endometrium relationship.

One important obstacle in the problem is the lack of establishment of accurate dosages, which will induce normal, and not excessive, follicle development. There has been evidence of excessive follicle stimulation with some of these substances and the concomitant possible development of cystic ovaries.

There is, also, the possibility of untoward allergic reactions, since these preparations are of a protein nature. Several serious reactions have been reported. Our usage of preparations of pregnant mares' serum has been relatively disappointing, and we believe that such therapy, if employed, should be considered definitely experimental, requiring very close supervision of the patient.

*Infantile Uterus.*—A hypoplastic uterus is frequently but one feature of a generalized state of hypogonadism. On occasion, however, the uterus may be poorly developed while other manifestations of gonadal function are fairly normal. In the presence of an infantile uterus, pregnancy may not readily occur, or, if it does, there may be predisposition to abortion. In some instances, development of the hyoplastic uterus can be induced by estrogenic therapy. Dosage should be rather heavy and preferably in cyclic form, to avoid interference with the menstrual flow. Therapy is started on the last day of each menstrual period and continued for three weeks, for three, four or more cycles. A daily dosage of 5 mg. of diethelstilbestrol is recommended, or the equivalent in other orally administered estrogens, such as dienestrol, hexestrol or conjugated estrogens.

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[3] Corner, G. W.: Relation Between Menstruation and Ovulation in Monkey: Its Possible Significance for Man, J. A. M. A. **89**: 1838 (Nov. 26) 1927. Mazer, C., and Ziserman, A. J.: Am. J. Surg. **18**: 332 (Nov.) 1932.

[4] Hamblen, E. C.: Endocrine Gynecology, Springfield, Ill., Charles C Thomas, Publisher, 1946.

[5] Mazer, C., and Israel, S.: Menstrual Disorders and Sterility, ed. 2, New York, Paul B. Hoeber, Inc., 1947.

[6] Tompkins, P.: Am. J. Obst. & Gynec. **51**: 876 (June) 1946.

[7] Sharman, A.: J. Obst. & Gynec. Brit. Emp. **51**: 85 (April) 1944.

[8] Siegler, S. L., and Fein, M. J.: Am. J. Obst. & Gynec. **38**: 102 (Dec.) 1939.

[9] Hall, G. J.: Am. J. Obst. & Gynec. **53**: 259 (Feb.) 1947.

[10] Geist, S. H.; Gaines, J. A., and Salmon, U. J.: Am. J. Obst. & Gynec. **42**: 619 (Oct.) 1941.

[11] Erving, H. W.; Sears, C., and Rock, J.: Am. J. Obst. & Gynec. **40**: 695, 1940.

*Poor Corpus Luteum Function.*—In some instances ovulation occurs, yet subsequent development and activity of the corpus luteum are below normal. The endometrium will then fail to develop full secretory changes and hence be inadequate for nidation and maintenance of the early embryo.[11a] This condition may be disclosed by the observations of repeated biopsies which show only poor secretory changes late in the cycle. Basal temperature curves with gradual rather than abrupt midcycle elevations are also suggestive of poor corpus luteum effect, although there is considerable disagreement on this point.

Therapy may be either (1) stimulative, with gonadotrophic hormone, or (2) substitutional, with corpus luteum hormone. Because of its more consistent action, substitution therapy with corpus luteum is probably the method of choice. Progesterone, 10 mg., is given intramuscularly, starting the eighteenth day of the cycle and continuing until bleeding occurs. If menstruation does not occur, the same dosage is continued until about the fourth month and then reduced to one every third day until fetal motion is felt. Potent corpus luteum hormone may be used orally, but this has the disadvantage of being considerably more costly in comparable dosage. If oral therapy is to be employed, a daily dosage of 40 mg. of pregneninolone is recommended. With the cost of this medication averaging about 25 cents for each 10 mg. tablet, it is obvious that continuous use may represent a financial burden. Orally administered preparations of corpus luteum derived from the gland itself have not been shown to have any clinical effectiveness; while many of these are inexpensive, they are also worthless.

*Habitual Abortion.*—The fairly large group of women in whom conception may occur with relative frequency only to terminate in spontaneous abortion may for practical purposes be considered infertile. Here again endocrine therapy appears to offer fascinating possibilities; yet it is generally believed that most causes of habitual abortion are not on an endocrine basis. A great percentage are attributable to defective germ plasm, local pelvic pathologic conditions, constitutional conditions, trauma and the like.[12] Of those attributable to hormonal disturbances, the exact etiologic mechanisms are obscure.

Because of the early experimental physiologic observations that corpus luteum hormone was responsible for maintaining the uterine musculature in a quiescent state during pregnancy, much therapy of habitual abortion has involved the use of corpus luteum hormone.[13] However, recent reports indicate that progesterone, alone, is not a particularly valuable agent in habitual abortion. Vaux and Rakoff,[14] for example, stated the opinion that, since both progesterone and estrogen play an important part in the maintenance of gestation, the use of either one of these alone is unphysiologic. They have advocated combined therapy with both progesterone and estrogens, starting as early as pregnancy is diagnosed and continuing until the period of viability. Both hormones may be given in one injection with a preparation which contains 10 mg. of progesterone and 1 mg. of estradial trimethyl acetate per cubic centimeter.[15] One cubic centimeter is given three times weekly.

Another point of view of endocrine therapy in habitual abortion has been advanced by Karnaky,[16] Smith and Smith and Hurwitz,[17] Greenhill [18] and others, who have used large doses of estrogens alone. Superficially, this would seem to contradict the known functioning, since estrogens are believed to stimulate uterine contractions. However, recent experiments provide some physiologic basis for such usage. Smith and Smith have demonstrated the important fact that in pregnancy diethylstilbestrol increases the production of corpus luteum hormone.

Kurzrok [19] has advocated the view that many cases of habitual abortion are associated with genital hypoplasia and that estrin administration promotes growth of the uterus, enabling it to keep pace with the developing fetus.

When used alone, diethylstilbestrol dosage is high. Greenhill [18] recommended 10 mg. daily, while Karnaky and others have advised at least 25 mg.

*Thyroid Hypofunction.*—It has been said, with perhaps some justification, that the use of thyroid substance has been the most important hormonal therapy of infertility. However, the exact value of thyroid is open to considerable conjecture. Despite the fact that numerous reports have appeared, advocating its routine use in sterility, regardless of the basal metabolic rate and other factors, the statistical evidence in favor of such usage is not too impressive. Reports giving cures in perhaps 30 per cent of patients given thyroid are subject to the criticism that the incidence of spontaneous cures in infertility may be nearly as high. Rabau, discussing therapy in sterility,[20] emphasized this fact in his series of 792 cases. Since thyroid is a routine measure so frequently, it may be given the credit for that which is in fact a spontaneous cure. Naturally, the same criticism holds for all types of therapy, but in the case of thyroid its commonplace usage makes it more suspect.

From the scientific point of view, thyroid extract should be given only in the presence of hypothyroidism. Such hypofunction can be diagnosed on the basis of clinical symptoms, basal metabolic rate, blood cholesterol and blood iodine. A slight decrease in the basal metabolic rate per se does not mean hypothyroidism. (Conversely, patients who appear somewhat

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11a. Rutherford, R. N.: Am. J. Obst. & Gynec. **51:** 652 (May) 1946.

12. Schutze, K. W.: Zentrabl. f. Gynäk. **65:** 161 (Jan.) 1941. Hertig, A. T., and Livingstone, R. G.: New England J. Med. **230:** 797 (June) 1944. Wall, R. L., and Hertig, A. T.: Am. J. Obst. & Gynec. **56:** 1127 (Dec.) 1948.

13. Collins, G. C.; Weed. J. C., and Collins, J. H.: Surg., Gynec. & Obst. **70:** 783 (April) 1940. Browne, J. S. L.; Henry, J. S., and Venning, E. H.: Am. J. Obst. & Gynec. **38:** 927 (Dec.) 1939.

14. Vaux, N. W., and Rakoff, A. E.: Am. J. Obst. & Gynec. **50:** 353 (Oct.) 1945.

15. Supplied as Estrotate® (trimethyl acetic acid ester of alpha estradial in sesame oil) with progesterone.

16. Karnaky, K. J.: Am. J. Obst. & Gynec. **51:** 840 (June) 1946.

17. Smith, O. W.; Smith, G. V., and Hurwitz, D.: Am. J. Obst. & Gynec. **51:** 411 (March) 1946.

18. Greenhill, J. P.: Yearbook of Obstetrics and Gynecology, Chicago, The Year Book Publishers, Inc., 1946, p. 53.

19. Kurzrok, R.: New York State J. Med. **46:** 493 (March 1) 1946.

20. Rabau, E.: Harefuah **31:** 1 (Sept.) 1945.

hypothyroid clinically may not possess a significantly low basal metabolic rate.) The prescribing of thyroid solely on the basis of mild lowering of the basal metabolic rate, in the presence of all other evidences of normal thyroid function, is not justifiable.

It has been shown adequately that, while the administration of thyroid in normal persons may temporarily provide an increase in the basal metabolic rate, this increase will not persist, and with the same dosage the basal rate will revert to the original level or even lower.[21] Furthermore, when medication is discontinued, there is a period of reduced basal metabolic rate for several weeks before the return to its original level. This is attributable to the suppression of the patient's own thyroid function by the exogenous thyroid.

One feature of thyroid therapy which may to some extent explain its popularity is the fact that thyroid is a highly potent oral substance, and hence when given it "does something." However, by the same token, it must be emphasized that controlled studies of infertile patients who have been successfully treated with thyroid are few and far between. This should not be taken as disproportionately harsh criticism of thyroid therapy, but rather as an effort to emphasize that there is a definite question as to its routine value. The literature is correctly filled with much criticism of other endocrine preparations; yet thyroid seems to occupy a perfectly respectable place, despite the fact that injudicious use of this substance may be equally harmful.

On the other hand, if there is an element of hypothyroidism, it is logical to assume that the metabolic stimulus provided by thyroid administration may be just the impetus required to increase gonadal function to the fertile level.

*Miscellaneous.*—Endocrine preparations have been utilized in a variety of other conditions associated with infertility in the female, and certain of these seem to show promise. For example, estrogenic therapy was found to improve the viscosity and quality of cervical mucus,[22] and a combination of estrogens and sulfadiazine has been recommended as a substitute for cauterization in clearing up the chronic endocervicitis, which at times appears as an important barrier to conception.[23]

Estrogenic therapy has also been suggested in instances when tubal motility is not normal; it is felt that such therapy increases tubal peristalsis. Experimental work in connection with tubal spasm is also being conducted utilizing testosterone.

## ENDOCRINE THERAPY IN THE MALE

The study of male infertility is still in its very early stages. The causes of many disturbances are obscure, and treatment is frequently unsatisfactory.

Two major conditions in which hormones may be involved in male disturbances are: (1) impotence and (2) defective spermatogenesis.

*Impotence.*—The ability to perform coitus, while a manifestation of endocrine normality, is also dependent on various neurogenic, psychogenic and mechanical factors. From the clinical point of view, the cause in the majority of cases of impotence is not primarily endocrine in origin and requires other therapy. In those cases in which the condition has an endocrine basis there will generally also be inadequate spermatogenic function, with other signs of hypogonadism. The majority of the patients have eunuchism or various stages of eunuchoidism. It is not common to see patients showing a combination of normal sperm production with impotence on the basis of hormone failure. In those patients in whom this does occur, rational treatment may be with the male hormone. The clinically effective dose of this substance is 25 mg. of testosterone propionate three times weekly. The equivalent oral dose is approximately 30 mg. of methyl testosterone, or 20 mg. given sublingually in the form of linguets.

*Seminal Deficiency.*—The majority of infertile husbands show normal ability to perform coitus, but have seminal deficiencies. Unfortunately, results of hormonal therapy in these cases are not encouraging. Stimulation of sperm production is directly dependent on secretion of the pituitary gonadotrophic hormone, follicle-stimulating hormone, the same hormone which produces follicular development in the female. Unfortunately again, the clinical experience with follicle-stimulating hormone preparations in the male are even more discouraging than in the female. If testicular biopsy is employed prior to therapy, many cases will be shown to merit no therapy because of irremediable damage to the seminiferous tubules.

The author has on occasion achieved some improvement in count by administration of gonadotrophic hormone in cycles and advising the patient to abstain from intercourse except at the period of the cycle during which ovulation may be expected to occur.[24] In that way, the best specimen may be obtained at the time when conception is most possible. There is, however, no evidence that spermatogenesis per se is improved in these patients to any substantial degree.

A new steroid, pregnenolone, has shown spermatogenic activity in experimental animals, but clinical investigation of this substance has failed to demonstrate significant therapeutic effectiveness.[25]

Testosterone propionate has been used frequently in the treatment of spermatogenic deficiencies, but such usage is not physiologic, since the male hormone does not directly stimulate activity of the seminiferous tubules. As a matter of fact, suppression of sperm production with the administration of large doses of testosterone has been reported. While this can undoubtedly occur, it is my impression that in the moderate dosage generally used, such suppression does not occur.

In instances in which the sperm count is fairly normal, but when motility may be somewhat impaired, small doses of testosterone may prove helpful by virtue of its effect on secretion of the prostate and other secondary sex glands. When used for this purpose, however, dosage should not exceed 10 mg. of testosterone propionate twice weekly or the equivalent in the form of methyl testosterone linguets.

The use of chorionic gonadotrophin in treating spermatogenic deficiency is not on a physiologic basis, since luteinizing hormone apparently has no effect on spermatogenesis.

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21. Farquharson, R. G., and Squires, A. M.: Tr. A. Am. Physicians **56**: 87, 1941.
22. Pommerenke, W. T., and Viergiver, E.: J. Clin. Endocrinol. **6**: 99 (Jan.) 1946.
23. Dill, L. V.: Am. J. Obst. & Gynec. **54**: 1074 (Dec.) 1947.
24. Tyler, E. T., and Payne, S.: Spermatogenesis and Therapy of Infertility, J. A. M. A. **134**: 770 (June 28) 1947.
25. Tyler, E. T.; Payne, S., and Kirsch, H.: West. J. Surg. **56**: 459 (Aug.) 1948.

The use of thyroid, in my opinion, should be limited to those patients who are hypothyroid, as discussed elsewhere in this paper.

Some investigators have stated the belief that in the male many gonadal deficiencies are fundamentally nutritional in origin and that treatment with substances other than hormones, such as vitamin B complex, desiccated liver and vitamin A, provides more therapeutic possibilities. Unfortunately, the correlation of histologic observations and therapeutic responses is still obscure, and, for the present, therapy in the male is largely a matter of general constitutional measures, hygienic habits, adequate diet and the like, with the use of hormones playing a relatively minor role in the present state of knowledge.

### SUMMARY AND CONCLUSIONS

The physiologic relationships of the endocrine glands in reproduction are briefly outlined. The use of various endocrine preparations in some of the commonly treated aspects of infertility is discussed. The effectiveness of endocrine therapy in sterility is limited by the important facts that (*a*) the majority of cases of infertility are not endocrine in origin, (*b*) many of the preparations available are clinically ineffective and (*c*) exact diagnosis of some endocrine disturbances is difficult. There is no substitute for careful etiologic study of the patient, with therapy directed toward the specific factors observed.

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## ABSTRACT OF DISCUSSION

Dr. Willard O. Thompson, Chicago: The problem of infertility involves many factors, some anatomic and some hormonal. One of our duties as physicians is to attempt to improve the quality of the race. It would be interesting to know what type of offspring results from our efforts to make it possible for persons who are relatively infertile to conceive. Is the product as good as it is in persons who have no infertility problem? It is extremely important that studies be carried out to determine just what the end result is. The problem reverts to the fundamental functioning of the gonads and pituitary, all the factors involved in the regulation of menstruation and in the elaboration of good spermatozoa. One of the most important contributions that the studies on infertility have made is some increase in the knowledge of the function of the gonads and the glands of internal secretion that are related to them, notably the pituitary. It is very desirable to continue these studies. Although examination of the spermatozoa is relatively simple, most spermatozoa counts and most observations on spermatozoa are improperly performed and of relatively little value. One constantly sees patients who are said to have few spermatozoa, in whom, on examination, one finds normal spermatozoa counts and spermatozoa which are normal in every respect. Spermatozoa counts are not difficult, but the technic has to be carried out accurately. The female presents a more complex problem. Several types of abnormality may be found in the female, from the physical point of view, the congenital point of view and from the point of view of hormone disturbances. These can be accurately determined only by the most careful examination, which frequently involves careful hormone assays. Certain endocrine products are of definite value in the treatment of infertility. It is occasionally possible, with the pituitary gonadotropins available at the present time, to induce ovulation in women with an ovulatory menstrual cycle. I should like to emphasize what Dr. Tyler pointed out, namely, that desiccated thyroid has been very much abused in the treatment of sterile couples. Desiccated thyroid is primarily of value when hypothyroidism is present. There is a close relationship between the thyroid and gonads, but it is effective only when there is a definite thyroid deficiency, and I should like to decry the wholesale use of desiccated thyroid in the treatment of sterile persons. The American Society for the Study of Sterility considers the problem of infertility so important that it plans to establish a separate journal.

Dr. Edward T. Tyler, Los Angeles: I wish to thank Dr. Thompson for his comments. I have been asked to say a few words about the enzyme hyaluronidase. I have used this substance clinically by packing it around the cervical os and also by adding it to the semen in artificial insemination. Results thus far do not appear to substantiate early clinical reports as to its therapeutic efficacy in certain types of infertility.

# MODERN HISTORY OF PERIPHERAL NERVE SURGERY

## World War II and the Postwar Study of Peripheral Nerve Regeneration

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It is perhaps a truism to state that the student of modern peripheral nerve surgery must be a student of military neurosurgery. Advances in this field, however, have always been directly related to two factors: (1) the decided increase in peripheral nerve injuries that always occurs as a result of war and (2) laboratory studies that have been embarked on because of the stimulus of problems that arise from this unusual mass of clinical material. For the purposes of this survey, the modern history of peripheral nerve surgery will be considered as starting in the latter part of 1942 and as reaching a clear end point with certain peripheral nerve regeneration studies now being conducted under the aegis of the National Research Council. This time limitation is admittedly an artificial one, and indeed the survey itself cannot be a complete one, but it covers a period in which some fifteen thousand peripheral nerve operations were performed and a later period in which at least an organized beginning was made in the objective study of the results of these procedures.

The general statement may be made that the recent progress of peripheral nerve surgery has rested more on a factual appreciation of the principles of nerve repair than on new methods of the technic of repair. There were, however, significant contributions to the age-long technical problem of securing an adequate end to end anastomosis, of overcoming large nerve defects by the implanting of a nerve graft and of controlling causalgic pain.

### SUTURE MATERIAL

The search for an ideal suture material was initiated early in the war with the introduction of tantalum wire rolled into a 0.003 inch (0.008 cm.) diameter and swedged to curved needles of equal size. This metallic suture proved to be relatively inert in tissue but demanded considerable manual dexterity in its application. The use of very fine silk was preferable to tantalum in the repair of nerves of fine caliber, such as the digital. The potential value of the metallic suture

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was immeasurably increased by the fact that the suture line could be visualized postoperatively by roentgenography of the site of anastomosis. This allowed the early fate of the integrity of the suture line to be followed at regular intervals and permitted the prompt recognition of suture line disruption. In a laudable effort to decrease the amount of tissue distortion at the suture line, and perhaps to decrease fibroblastic invasion at the point of anastomosis, several nonsuture methods of nerve repair were developed, notably the so-called plasma-glue suture. Its value was not fully delineated during the war experience, but it is reasonable to say that it is an auxiliary method of nerve repair to be used primarily in situations where suture line tension is minimal. One such situation is present when the adequate insertion of a nerve graft is contemplated.

### NERVE GRAFTING

Perhaps no problem in this field has titillated the ambitions of neurosurgeons more than that of nerve grafting, and undoubtedly more energy and talent were expended on this matter than it deserved during these difficult years. When the human experiments in this field were assayed, it was obvious that man could not be considered as simple a creature histologically as could the rabbit, the cat or even the monkey. In the face of repeated successes in the experimental animal, whole fresh homografts and autografts of large nerves showed lack of clinical regeneration and histologic evidence of extensive fascicular necrosis and fibrous tissue replacement. The frozen-dried and rehydrated homograft of large nerves was promising and merits further trial as a longitudinally oriented bridge for the ingress of regenerating axons into the distal stump. There was sufficient laboratory and clinical evidence to show that the critical period of self sufficiency of the implant was quite short and that the reestablishment of the blood supply of the graft was of paramount importance. Since there existed much evidence of the success of single autografts in the grafting of small nerves, such as the facial and digital, the use of multistranded or cable autografts in the repair of injured nerves was a logical sequel of these observations. Since the strands of cutaneous sensory nerves used to form the cable graft were small, the use of the plasma glue technic of suture was advocated. A recent answer to this problem has been furnished in the affirmative by our English colleagues, but obviously much still remains to be done.

### CAUSALGIA

No greater personal tragedy exists for the person with a major peripheral nerve injury than to have the pain of causalgia superimposed on his existing extremity dysfunction. The prewar years had demonstrated that such pain could be abolished by an appropriate denervation of the sympathetic nerve supply to the point of injury. The military experience in this field was fully exploited. Causalgia was found to appear in approximately 3 per cent of major nerve injuries and usually in instances of incomplete nerve division. In addition to the possible roles of vasospasm and local ischemia, direct cross stimulation of the sensory fibers by efferent sympathetic impulses at the point of nerve tissue injury was postulated as a theory that deserved serious consideration. Whatever the causation of this bitter pain may be, the relief by chemical or surgical interruption of the sympathetic nervous system occurred in such a high percentage of cases that failure could be explained only on the basis of inadequate denervation or the presence of neurosis or hysteria.

### PROPER TIME FOR SUTURE

The difficulty of appraising the many variables affecting the recovery process in peripheral nerve injuries is at no point better illustrated than in the complex evaluation of the proper time at which to perform a definitive nerve suture. The evidence against primary or immediate or emergency nerve sutures in war injuries was almost incontrovertible, and the American point of view has been supported by British neurosurgical opinion. The contraindications to immediate suture proved to be the presence of infection, the technical difficulties of suture and nerve segment mobilization and, above all, the inability of the surgeon to evaluate exactly the extent of pathologic change in the respective nerve ends. To obviate these difficulties, the so-called early nerve suture was advocated with the sequence of events somewhat as follows: (1) debridement of the wound, with or without approximation of the visualized nerve segment by a fixation suture, and the start of antibiotic therapy, (2) delayed closure of the wound after infection has been delimited, (3) definitive nerve suture at a time when wound healing was complete, three to six weeks after the initial trauma, (4) judicious limb immobilization during transportation and after nerve suture, preferably by removable splints, and (5) preoperative and postoperative physical therapy. This time of definitive nerve suture, as compared with immediate nerve suture, was still early enough to obviate regressive changes in the distal nerve segment and in the denervated extremity as a whole. Normal wound healing occurred in 98 per cent of cases, and a study of the early course of regeneration disclosed suture line failure in but 5 per cent of the cases, as contrasted to 22.4 per cent of failure in the immediate nerve suture group. Similar results were reported from the Mediterranean Theater of Operations.

The transfer of this principle of nerve repair to civilian injuries caused by entirely different wounding mechanisms is a controversial issue at this moment, an issue perhaps confused by a too strict interpretation of the war injury sequence of procedures. In civilian injuries, debridement and primary skin closure can be carried out. The nerve injury may be treated but once at a time when a difficult tedious dissection can be initiated in a clean operative field, as an elective operation, in a thoroughly prepared patient. It is indisputably true that the trained neurosurgeon can carry out primary nerve suture with excellent results, granted that the patient is in a receptive mood and physical status commensurate with the task at hand. Unfortunately, the majority of peripheral nerve injuries occur and are treated in the absence of such specialists. The war experience has in part exploded the fallacy that a nerve injury is an emergency problem. It may soon even attain the respectable stature of an elective procedure, carried out at 8 o'clock in the morning by a rested and informed surgeon on a patient prepared for any eventuality.

### PERIPHERAL NERVE REGISTRY

The Peripheral Nerve Registry of World War II was established by the Surgeon General on Nov. 22, 1944, with the twin purposes of studying neural regeneration during army hospitalization and at certain time periods during the postwar era. By the end of hostilities, about 7,000 nerve sutures and nerve grafts had been registered and a statistical study of the basic data of the Registry had been compiled. This roster of patients and the desirability of follow-up in neural regeneration in the postwar period was presented to the Conference on Post-War Research held by the Division of Medical Sciences of the National Research Council on April 18, 1946. From this conference report stemmed two meetings of interested neurosurgeons, neurologists and neurophysiologists, which resulted in formal application being presented to the Committee on Veterans Medical Problems of the National Research Council for clinical research in this field, eventually entitled Project 13, "Follow-up Studies of Peripheral Nerve Injuries in Veterans." Study centers have been established in Boston, New York, Philadelphia, Chicago, San Francisco and Durham, N. C., with the simple and primary purpose of studying the varying aspects of neural regeneration in the war injured by the best of research methods. These study centers are functioning at the present time. This is one of the most ambitious and far reaching programs that have ever been devised for the study of peripheral nerve regeneration. Its objectivity is attested to by the fact that precision methods of study are being supervised by neurologists and neurophysiologists, none of whom have ever been responsible for actual surgical treatment or have ever used specific methods of treatment. On the other hand, in each center an experienced military neurosurgeon, some of whom are administrative heads of the center, will examine each case and add to the studies their knowledge of the conditions under which the wounds were suffered and the principles under which the patient received definite therapy. The final results of these endeavors will greatly influence military neurosurgery, in terms of both treatment and the disposition of wounded soldiers. One may also confidently expect that such studies will define in some detail the application of the wartime experience to the similar problems of peripheral nerve surgery encountered in civilian life.

### CONCLUSION

Many years ago, Leonardo Da Vinci wrote these words about the peripheral nervous system, "The function of the nerve is to give a stimulus. They are the knights of the soul and have their origin from its seat, and command the muscles that move the members at the good pleasure of the soul."

Some of my colleagues who worked long and hard with these difficult injuries would feel that this were extravagant praise indeed. They would prefer never to have the subject mentioned again. Be that as it may, the study of this complex system is not complete; with the aid of modern research methods, the art of peripheral nerve surgery will continue to advance.

## ABSTRACT OF DISCUSSION

Dr. William J. Mixter, Boston: Dr. Woodhall failed to state that he himself is largely responsible for the advancement of our knowledge of peripheral nerve surgery. The other point I wish to make is that careful follow-up of patients with this group of nerve injuries will require the cooperation of all members of the medical profession who see these patients. It is essential that they be examined repeatedly. Therefore, the physician should urge that they report back for such examination.

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# ANGIOCARDIOGRAPHIC STUDY OF THE PULMONARY ARTERY

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Congenital and acquired heart disease, as well as pulmonary disease, produce significant changes in the size and configuration of the pulmonary artery and its branches. Because of the intimate relation of the artery to the heart and the mediastinal structures, recognition of these changes in roentgenologic study of the pulmonary artery has hitherto been difficult. Groedel's careful description of a probable aneurysm of the pulmonary artery [1] demonstrates convincingly the difficulties presented to the roentgenologist in the anatomic diagnosis of pathologic conditions of the pulmonary artery. With the presentation, in 1938, by Robb and Steinberg,[2] of a practical method of visualization of the cardiovascular system with contrast medium, the entire bed of the pulmonary artery became readily accessible to roentgenologic examination. Angiocardiography has indicated a wide variety of pathologic states which are manifested, in part, in abnormalities of the pulmonary artery. It is the purpose of this paper to present an angiocardiographic study of the normal and the pathologic pulmonary artery.

### THE NORMAL PULMONARY ARTERY

The normal pulmonary artery is a short, broad vessel which arises from the conus arteriosus at the pulmonary semilunar valves to the left of the ascending aorta and then ascends, to the left and posteriorly, to a point below the aortic arch, where, just to the left of the spine, it gives off left and right main branches. The right branch passes posterior to the ascending aorta and the superior vena cava and anterior to the tracheal bifurcation, esophagus, thoracic duct and spine. to the hilus of the right lung, where it divides into superior and inferior branches. The left branch runs a short course to the hilus of the left lung; it is related posteriorly to the left main bronchus and the descending aorta and superiorly to the descending aortic arch, to which it is connected by the ligamentum arteriosum. Inferiorly, the right and left branches of the pulmonary artery are related to the pulmonary veins.

Though it is limited, conventional roentgenoscopy offers valuable information concerning the pulmonary artery. In frontal projection, the prominence immediately beneath the aortic knob is the shadow of the pulmonary trunk and its left main branch. This segment of the left cardiac border is abnormally prominent in dilatation of the pulmonary artery. In the lateral and both oblique projections, the upper anterior cardiac border is formed by the conus arteriosus and the pulmonary artery. The right auricular appendage plays

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This investigation was aided by a grant from the Schering Corporation, manufacturers of sodium iodomethamate (solution *"neo-iopax"*). The 75 per cent solution was used.

[1] Groedel, F. M.: Aneurysm of the Pulmonary Artery, Radiology **33**: 219-231 (Aug.) 1939.

[2] Robb, G. P., and Steinberg, I.: A Practical Method of Visualization of the Chambers of the Heart, the *Pulmonary Circulation and the Great* Blood Vessels in Man, J. Clin. Investigation **17**: 507 (July) 1938; Visualization of, the Chambers of the Heart, the Pulmonary Circulation and the Great Blood Vessels in Man, Am. J. Roentgenol. **41**: 1-17 (Jan.) *1939.*

a role in the formation of the upper anterior border in the left anterior oblique projection. In the lateral and left oblique projections, the right branch of the pulmonary artery is often recognizable as a rounded area of density within the hilar shadows. Similarly, the end on shadow of the left main branch may occasionally be recognized in the right anterior oblique projection. Dilatations of the pulmonary portion of the outflow tract may be recognized, in the lateral and oblique projections, in increased prominence of the upper anterior cardiac border and in a diminished retrosternal space. An enlarged pulmonary artery may indent the barium-filled esophagus; this may be viewed on lateral projection.[3]

Angiocardiography has established the validity of the preceding observations and disproved certain erroneous assumptions regarding the part of the pulmonary portion of the outflow tract in the composition of the normal cardiac contour. In angiocardiographic literature, the fact has been repeatedly emphasized that the pulmonary conus plays no role in the formation of the left cardiac border in frontal projection.[4] Visualization of the pulmonary artery and its branches, using contrast medium, affords precise, anatomic observations. In the frontal projection, the pulmonary artery may be seen as an almost vertical shadow, terminating superiorly in its bifurcation. The right branch is clearly demonstrated in its horizontal course to the hilus of the right lung. The left branch of the pulmonary artery "sits upon" the pulmonary trunk, curving downward as it enters the root of the left lung. The superior margin of the left branch of the pulmonary artery is regularly 1 to 2 cm. higher than that of the right branch. The conus arteriosus is not sharply outlined in the frontal projection, although its outer termination is often indicated by the sinus above the left pulmonary semilunar valve.

In the lateral and both oblique projections, the distinction between the pulmonary artery and the conus arteriosus can usually be made with certainty. The sinuses of the pulmonary semilunar valves are seen as localized dilatations of the pulmonary part of the outflow tract, while the anterior cusp of the pulmonary valve can often be identified. Distal to this point, the pulmonary trunk proceeds posteriorly, making up a portion of the anterosuperior cardiac border. The pulmonary trunk and the conus arteriosus are best seen in the lateral projection.

Angiocardiography affords accurate measurement of the caliber of the pulmonary trunk and the right main branch. Measured in 50 normal persons, the right main branch of the pulmonary artery, as it crossed the spine in frontal projection, varied from 17 to 30 mm. in caliber, averaging 23.4 mm. The pulmonary trunk ranged from 20 to 30 mm., averaging 26.4 mm., while the pulmonary conus ranged from 16 to 24 mm. and averaged 19.1 mm. These measurements were made in oblique and lateral projections; complete details were presented in a previous article.[4c] A slight, progressive increase with advancing age was noted in the caliber of the pulmonary artery.

### THE PULMONARY ARTERY IN PATHOLOGIC CONDITIONS

*Congenital Heart Disease.*—Many of the commonly encountered, congenital cardiovascular abnormalities are manifested, in part, by morphologic or dynamic changes in the pulmonary artery. These changes, long recognized and well described in the literature of pathology and roentgenology, are best demonstrated in the living subject by means of angiocardiography. An abnormal pulmonary artery is present in every case of congenital "cyanotic heart disease." The most frequently observed change is that of dilatation of the pulmonary artery.

Primary or idiopathic dilatation of the pulmonary artery is less frequently encountered than secondary dilatation. Congenital lesions causing secondary or dynamic dilatation of the pulmonary artery include patent ductus arteriosus, septal defects (alone or in combination with other defects, as in Eisenmenger's syndrome) and pulmonic stenosis, wherein the artery is often widely dilated beyond the point of narrowing. The pulmonary artery may be small or absent in pulmonic stenosis (alone or in combination with other defects, as in the tetralogy of Fallot), in tricuspid atresia and in atresia of the pulmonary artery. Angiocardiography may be expected to reveal the pathologic anatomy of such congenital lesions as common truncus arteriosus, transposition of the great blood vessels, anomalous pulmonary arteries and veins and dextrocardia. Only those lesions commonly compatible with life beyond the first few years are included in our series.

*Congenital Aneurysm of the Pulmonary Artery.*—Idiopathic dilatation, or aneurysm, of the pulmonary artery is less rare a condition than has been previously supposed. Its recognition with angiocardiography is simple, and additional cases will probably appear in the literature with increasing frequency. In making the diagnosis, all other possible causes of dilatation of the pulmonary artery must be excluded, with clinical and roentgenologic means. We studied 2 cases of pronounced dilatation of the pulmonary artery in which no etiology other than congenital could have been implicated (fig. 1).

*Septal Defect.*—The relation between defects of the interatrial or interventricular septum and dilatation of the pulmonary artery is well known. Though either may cause dilatation, interatrial defects are more prone to cause pronounced dilatation of the pulmonary artery.[5] Probably the greatest secondary dilatation of the pulmonary artery occurs with an interatrial defect combined with mitral stenosis (Lutembacher's syndrome).[6]

*Patent Ductus Arteriosus.*—Dilatation of the pulmonary artery is the most common observation in the roentgenologic diagnosis of patent ductus arteriosus; it occurred in 41 of 50 proved cases reported by Donovan, Neuhauser and Sosman.[7] Steinberg, Grishman and Sussman drew attention to an elevation of the main and left pulmonary arteries in this condition.[4d] Our data are similar to these observations. In addition, we observed opacification of the ductus itself, with reopacification of the pulmonary artery. Figure 2 illustrates the reopacification of a dilated, elevated pulmonary artery in a case of clinically established patent ductus arteriosus. *Angiocardiography in this case ruled out the presence of septal patency and, in addition, revealed a localized dilatation of the descending aorta at the point of origin of the ductus, a sign first described by Steinberg, Grishman and Sussman.*[4d]

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[3] Schwedel, J. B.: Clinical Roentgenology of the Heart, New York, Paul B. Hoeber, Inc., 1946.

[4] (*a*) Robb and Steinberg.[2] (*b*) Weber, H. M.: Recent Advances in Roentgenology: Angiocardiography, Am. J. M. Sc. **205:** 747-753 (May) 1943. (*c*) Dotter, C. T., and Steinberg, I.: The Angiocardiographic Measurement of the Normal Great Vessels, Radiology, to be published. (*d*) Steinberg, M. F.; Grishman, A., and Sussman, M. L.: *Angiocardiography in Congenital Heart Disease: Patent Ductus Arteriosus,* Am. J. Roentgenol. **50:** 306-315 (Sept.) 1943. (*e*) Robb, G. P., and Steinberg, I.: Visualization of the Chambers of the Heart, the Pulmonary Circulation, and the Great Blood Vessels in Heart Disease, Am. J. Roentgenol. **42:** 14-37 (July) 1939. (*f*) Robb, G. P., and Steinberg, I.: Visualization of the Chambers of the Heart and the Thoracic Blood Vessels in Pulmonary Heart Disesae: A Case Study, Ann. Internat. Med. **13:** 12-45 (July) 1939. (*g*) Sussman, M. L.; Steinberg, M. F., and Grishman, A.: Contrast Visualization of the Heart and Great Blood Vessels in Emphysema, Am. J. Roentgenol. **47:** 368, 1942.

[5] White, P. D.: Heart Disease, ed. 3, New York, The Macmillan Company, 1946.

[6] Taussig, H. B.: Congenital Malformations of the Heart, New York, The Commonwealth Fund, 1947.

[7] Donovan, M. S.; Neuhauser, E. B. D., and Sosman, M. C.: The Roentgen Signs of Patent Ductus Arteriosus, Am. J. Roentgenol. **50:** 293-305 (Sept.) 1943

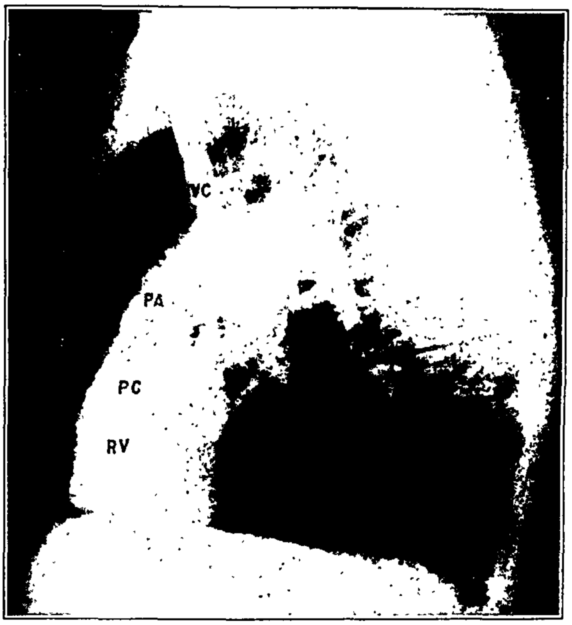

Fig. 1.—Congenital aneurysm of the pulmonary in a patient of 35 years; left lateral projection. SVC, superior vena cava. RV, right ventricle. PC, conus (conus arteriosus). PA, pulmonary artery. Note aneurysmal dilatation of the pulmonary trunk and its branches.

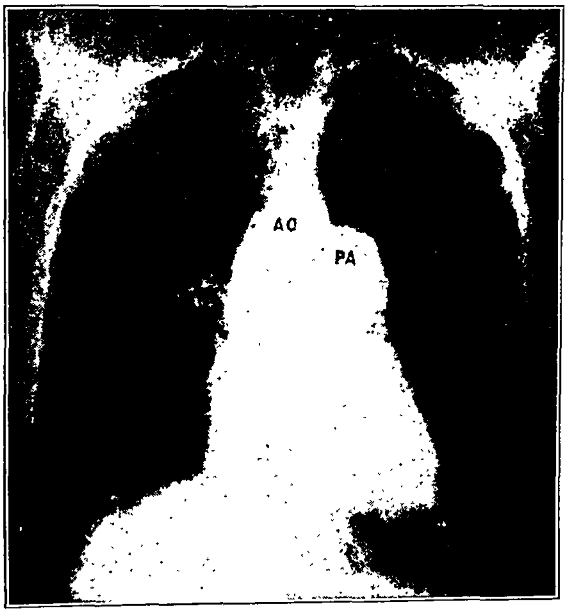

Fig. 2.—Patent ductus arteriosus in a patient of 29 years; frontal projection, ten seconds after injection. The aorta (AO) is opacified, and the reopacified, dilated pulmonary artery (PA) is outlined.

*Eisenmenger's Syndrome.*—The combination of interventricular septal defect, dextroposition of the aorta and a dilated or normal pulmonary artery, known as the Eisenmenger complex, is not amenable to surgical treatment. This is in contradistinction to the tetralogy of Fallot, where pulmonic stenosis is present and where great relief may be obtained with the surgical creation of a "shunt" from a peripheral artery to the hypotensive bed of the pulmonary artery. The angiocardiographic demonstration of a dilated pulmonary artery and pulmonary conus is a contraindication to an aortic-pulmonary anastomosis.

*Pulmonic Stenosis.*—Pulmonic stenosis is clearly revealed angiocardiographically; the exact location of the point of narrowing may be demonstrated. Stenosis usually occurs in combination with other anomalies but is often seen as an isolated lesion. In 2 patients, both of whom were noncyanotic, pulmonic stenosis was demonstrated angiocardiographically as an isolated lesion. In one case (fig. 3) the stenosis was infundibular, while in the other case (fig. 4) the site of narrowing was above the valve. Demonstrated in both cases was a dilatation of the pulmonary artery distal to the point of stenosis, often observed in coarctation of the aorta.[8]

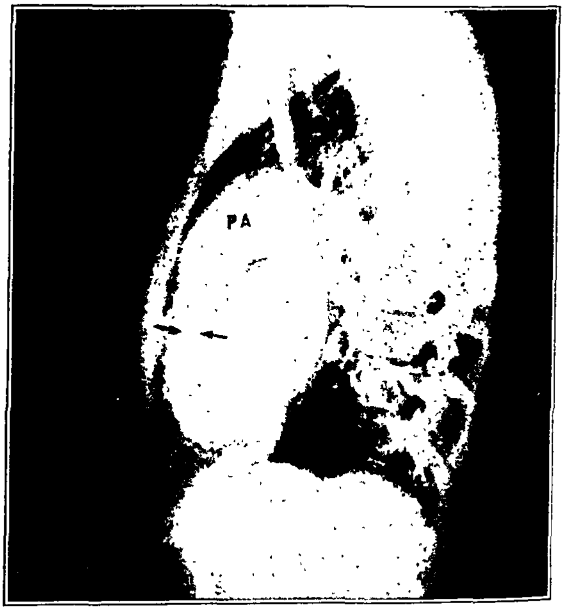

Fig. 3.—Infundibular pulmonic stenosis in a patient of 30 years; left lateral projection. Arrows embrace the point of stenosis below the pulmonary semilunar valves. *Note distal dilatation of the pulmonary artery (PA) and its branches.*

*Tetralogy of Fallot.*—Angiocardiographic visualization of the site of pulmonic stenosis in the tetralogy of Fallot should invariably be accomplished before operative intervention. As well as in ruling out the presence of the clinically similar Eisenmenger's syndrome and in confirming the diagnosis of septal defect and dextroposed aorta, angiocardiography is of great value in demonstrating to the surgeon the exact anatomic structure of the defect he plans to correct. In this manner, unnecessary delay during the actual, time-consuming operation may be avoided. In no other congenital cardiac abnormality is angiocardiography of such great value to the patient as in the tetralogy of Fallot.

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8. Grishman, A.; Steinberg, M. F., and Sussman, M. L.: Contrast Roentgen Visualization of Coarctation of Aorta, Am. Heart J. **21:** 365-370 (March) 1941.

Figure 5 demonstrates the appearance in a case of tetralogy of Fallot.

*Rheumatic Heart Disease.*—Mitral stenosis due to rheumatic fever causes enlargement of specific chambers of the heart and, thereby, imparts characteristic changes to the silhouette. Among these are enlargement of the left atrium and enlargement of the right ventricle and its outflow tract, including the pulmonary artery and its branches. As has been previously reported, the pulmonary artery and its left main branch make up the prominence in the left upper cardiac border (viewed in the frontal projection), frequently observed in mitral stenosis.[9] In our series, dilatation of the pulmonary artery was not so important as elongation of the outflow tract of the right ventricle in producing this prominence. Rotation of the heart to the left and backward, which occurs secondary to the enlargement of the right ventricle, also contributes to the apparent prominence of the pulmonary artery, as it causes the aortic knob to become less prominent.

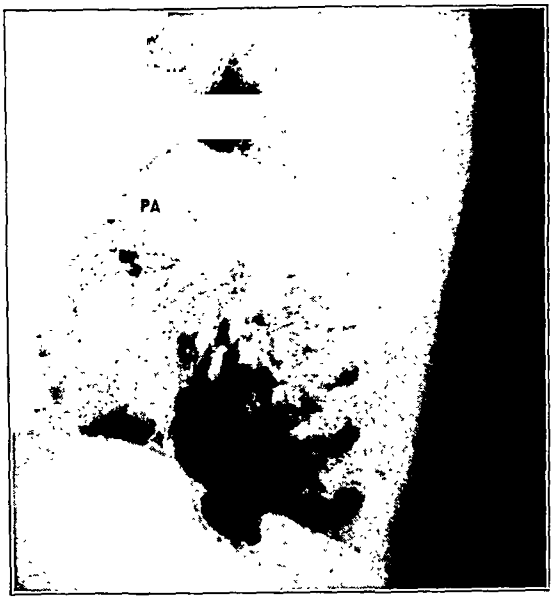

Fig. 4.—Congenital pulmonic stenosis above the pulmonary valve in a patient aged 28 years; left lateral projection. Arrow indicates stenosis, distal to pulmonary semilunar valves. Note dilatation of the pulmonary artery (PA) and its branches, distal to stenosis.

Not invariably present, though often striking, in mitral stenosis is dilatation of the pulmonary trunk and its branches. Figure 6 shows dilatation of the left pulmonary artery in a patient who had clinically established and roentgenographically typical mitral stenosis. We agree that the earliest change in mitral stenosis which can be observed roentgenologically is an enlarged left atrium[10] and have made angiocardiographic observations of normal pulmonary arteries in the presence of enlarged left atria due to mitral stenosis. Disease of the aortic valve in the absence of cardiac failure had no effect on the pulmonary artery in our series. Cardiac failure, regardless of its etiology, may result in dilatation of the bed of the central pulmonary artery as well as in the familiar congestion of the pulmonary vessels.

*Syphilis.*—Syphilis of the pulmonary artery is similar to, less common than and generally accompanied by syphilis of the aorta. The disease may affect the major pulmonary arteries in the form of arteritis not unlike that of the aorta, with intimal thickening and destruction of the elastica. Although overemphasized, syphilitic endarteritis of the lesser branches of the pulmonary artery does occur and may occasion secondary atheromatous changes in the main branches,

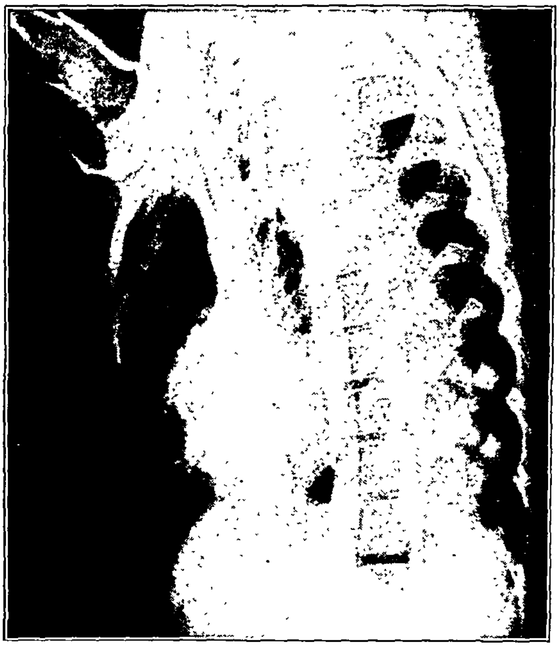

Fig. 5.—Tetralogy of Fallot in a patient aged 9 years; left anterior oblique projection, two seconds exposure. Note simultaneously opacified large right ventricle and small left ventricle and the aorta, which was overriding. The pulmonary artery was decidedly stenotic and did not fill. (Diagnosis confirmed at operation.)

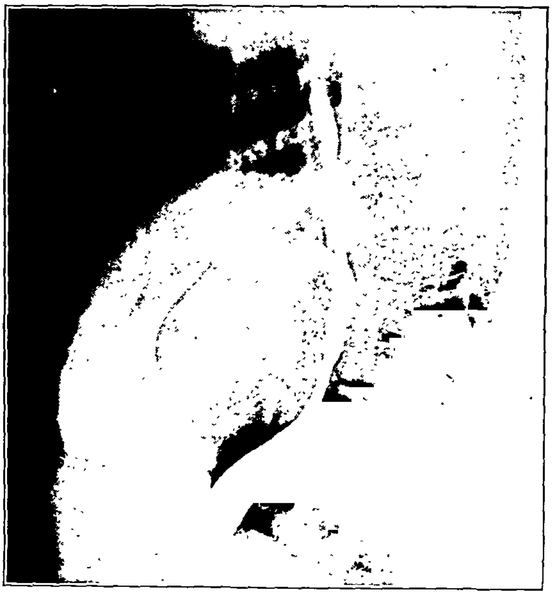

Fig. 6.—Rheumatic mitral stenosis in a patient of 46 years; left lateral projection, with barium in esophagus. Note enlarged right ventricle and dilated pulmonary artery, which are filled with sodium iodomethamate. The enlarged left atrium is outlined in negative contrast.

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[9] Robb and Steinberg.[4e] Grishman, A.; Sussman, M. L., and Steinberg, M. F.: Angiocardiographic Analysis of Cardiac Configuration in Rheumatic Heart Disease, Am. J. Roentgenol. 51: 33-43 (Jan.) 1944.

[10] Parkinson, J., and Hartley, R.: Early Diagnosis of Rheumatic Valvular Disease in Recruits, Brit. Heart J. 8: 212-232 (Oct.) 1946.

with ultimate pulmonary hypertension and cor pulmonale.[11] Clinically and roentgenographically, however, syphilis of the pulmonary artery is usually manifested in the form of an aneurysm. Including 2 cases of their own, Boyd and McGavack were able to collect only 35 cases of syphilitic aneurysm of the pulmonary artery or its main branches in which the diagnosis had been proved by autopsy.[12] Angiocardiographic demonstration of aneurysm of the pulmonary artery is convincing. Sussman recently reported an angiocardiographically visualized aneurysm of the pulmonary artery, of presumably syphilitic origin.[13] Figure 7 shows an aneurysm of the pulmonary artery in a patient with clinically and angiocardiographically established syphilitic aortitis. The pulmonary artery or conus arteriosus may be obstructed by a syphilitic dilatation of the ascending aorta. Garvin and Siegel presented results of clinical and pathologic examinations in 3 such cases, which progressed to cor pulmonale and death.[14]

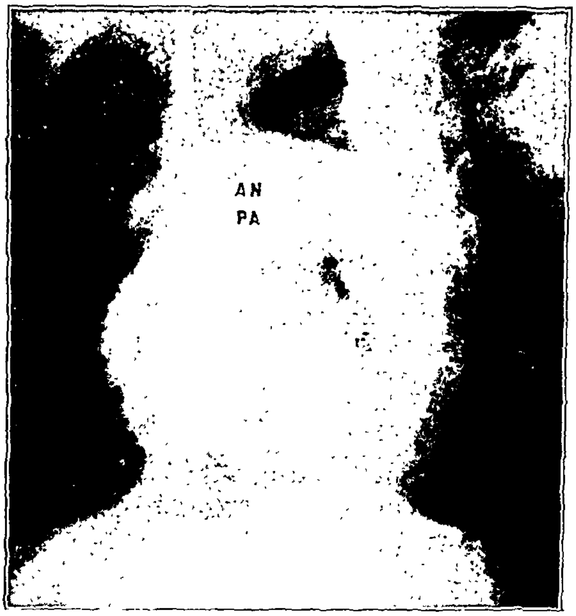

Fig. 7.—Syphilitic aneurysm of the pulmonary artery in a patient aged 60 years; left anterior oblique projection. ANPA, aneurysm of the pulmonary artery and its main branches.

*Pulmonary Heart Disease.*—It is generally accepted that chronic pulmonary disease is the principal cause of cor pulmonale. Robb and Steinberg reported in detail the angiocardiographic observations in a case of chronic pulmonary fibrosis and emphysema,[4f] while Sussman, Steinberg, and Grishman reported similar evidence in 28 cases of pulmonary emphysema.[4g] Although chronic obstructive emphysema is the most frequent cause of chronic cor pulmonale, silicosis, bronchiectasis, tuberculosis, bronchial asthma, kyphoscoliosis or primary sclerosis of the pulmonary artery (Ayerza's disease) may be associated with the changes of pulmonary heart disease. These changes are similar, regardless of the etiology or dynamics involved. We have observed hypertrophy of the right side of the heart associated with emphysema, pulmonary fibrosis, extensive fibrotic pulmonary tuberculosis, bronchiectasis, silicosis, chronic obstruction of the conus arteriosus by aortic aneurysm, kyphoscoliosis and primary sclerosis of the pulmonary artery.

In the presence of chronic pulmonary hypertension, the earliest change observed angiocardiographically was elongation of the pulmonary outflow tract, including both the conus arteriosus and the pulmonary artery, followed by moderate dilatation of the bed of the pulmonary trunk. Concomitant dilatation and hypertrophy of the right ventricle occur, usually causing the pulmonary artery to swing to the left and assume a more prominent position in the left upper border of the heart. Absolute enlargement of the right ventricle is often recognizable, while, in some instances, a bulge of the interventricular septum toward the left has been of help in identifying enlargement of the right ventricle.[4g]

The New York Heart Association requires the presence of "evidence of cardiac insufficiency with marked cyanosis" for the diagnosis of pulmonary heart disease.[15] Rheumatic valvular disease may be diagnosed long before cardiac failure is present, and it would seem logical to proceed similarly in the case of cor pulmonale. The presence of cyanosis should be no more necessary in the diagnosis of cor pulmonale than the presence of calcification of the mitral ring is necessary in the diagnosis of mitral stenosis.

*Other Secondary Abnormalities of the Pulmonary Artery.*—A variety of other intrathoracic abnormalities alter the configuration of the central pulmonary arterial system. Mediastinal or pulmonary tumors, primary or metastatic, may encroach on or distort the main branches of the pulmonary artery. Angiocardiographic evidence of actual stenosis, or occlusion, of a major pulmonary artery due to a tumor is usually evidence that the lesion is advanced and probably inoperable. The detailed vascular pattern in pulmonary tumors is being studied at the time of writing.

Kyphoscoliosis causes stretching and distortion of the cardiovascular structures, often bringing about enlargement of the right side of the heart and dilatation of the pulmonary artery, secondary to obstructive emphysema and extremely inefficient functioning of the lungs. After thoracoplasty and pneumothorax, a decrease in the caliber of the pulmonary artery supplying the collapsed side has been noted repeatedly in our series of cases. After pneumonectomy, a secondary dilatation of the branch of the pulmonary artery supplying the remaining lung has been observed. Such secondary or dynamic dilatation or diminution of the pulmonary artery is comparable to compensatory hypertrophy or atrophy of disuse in general, and is in agreement with the results of studies on the functioning of the lungs.[16] Angiocardiographic visualization of the abnormal pulmonary artery in these conditions is satisfactory and superior to other methods of structural investigation.

Frequently, in the course of conventional roentgenoscopic examination of the chest, prominent shadows are observed in one or both hilar regions and the problem of differential diagnosis arises. Angiocardiography easily differentiates between enlarged hilar vessels and nonvascular structures, such as enlarged hilar lymph nodes or tumors. The identity of rounded hilar shadows and hilar vessels seen end on may be established by visualization with contrast mediums. It may be difficult to distinguish aneurysm of the descending aorta from dilatation of the left main branch of the pulmonary artery without the aid of angiocardiography.

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[11] Hare, D. C., and Ross, J. M.: Syphilitic Disease of the Pulmonary Arteries, Lancet **2**: 806-812 (Oct. 14) 1939.

[12] Boyd, L. J., and McGavack, T. H.: Aneurysm of the Pulmonary Artery: Review of Literature and Report of Two New Cases, Am. Heart J. **18**: 561-572 (Nov.) 1939.

[13] Sussman, M. L.: The Differentiation of Mediastinal Tumor and Aneurysm by Angiocardiography, Am. J. Roentgenol. **57**: 584-590 (Nov.) 1947.

[14] Garvin, C. F., and Siegel, M. L.: Cor Pulmonale Due to Obstruction of the Pulmonary Artery by Syphilitic Aortic Aneurysms, Am. J. M. Sc. **198**: 679-685 (Nov.) 1939.

[15] Nomenclature and Criteria for Diagnosis of Diseases of the Heart, ed. 4, New York, New York Heart Association, 1945, p. 22.

[16] Andrus, W. D.: Observations on the Cardiorespiratory Physiology Following the Collapse of One Lung by Bronchial Ligation, Arch. Surg. **10**: 506-519 (Jan.) 1925. Bloomfield, R. A.; Lauson, H. D.; Cournand, A.; Breed, E. S., and Richards, D. W.: Recording of Right Heart Pressures in Normal Subjects and in Patients with Chronic Pulmonary Disease and Various Types of Cardio-Circulatory Disease, J. Clin. Investigation **25**: 639-664 (July) 1946.

## SUMMARY

A survey of the pulmonary artery and its main branches in normal and abnormal conditions, utilizing the angiocardiographic material and the experience accumulated over an eleven year period, has been presented. The value of angiocardiography in arriving at early and anatomically precise diagnoses of conditions affecting the pulmonary artery has been stressed and illustrated.

Visualization with contrast medium has proved itself indispensable in the diagnosis of congenital cardiac lesions. Angiocardiographic visualization of the pulmonary artery should be utilized in every case of tetralogy of Fallot prior to surgery, in order that surgical method may be correctly planned, unproductive approaches avoided and valuable time saved. No longer need exact anatomic diagnosis of congenital lesions of the heart originate at autopsy. Angiocardiographic evidence of a lesion is often as convincing proof as pathologic examination, and it has the advantage of being applicable to the living patient.

The earliest change observed angiocardiographically in mitral stenosis has been enlargement of the left atrium, followed infrequently with enlargement of the pulmonary artery and the right ventricle. This is in accordance with conventional roentgenoscopic observations. With the aid of angiocardiography, aneurysmal dilatation of the pulmonary artery may now be identified with ease, and data on factors responsible for such dilatations may be clarified. In our series, dilatation of the pulmonary artery was seen to be caused by congenital and acquired diseases of the heart and chest. Congenital lesions included patent ductus arteriosus, septal defects (more pronounced dilatation resulted from interatrial, as opposed to interventricular, defects), idiopathic aneurysmal dilatations, the Eisenmenger complex and pulmonic stenosis. Dilatation of the pulmonary artery and its major branches was also seen in the presence of mitral stenosis, congestive cardiac failure, chronic pulmonary disease and kyphoscoliosis. It is suggested that the diagnosis of pulmonary heart disease can be made far in advance of the appearance of cyanosis, not only with angiocardiographic methods but also with conventional roentgenoscopy, and it is suggested that the official criteria for the diagnosis of this condition are in need of modification.

The value of angiocardiography in the preoperative diagnosis of pulmonary and mediastinal tumors has been discussed. It is often possible to establish angiocardiographically the inoperability of tumors which have spread to the mediastinum and altered the configuration of the great blood vessels. Changes occurring in the bed of the pulmonary artery after artificial pneumothorax or pneumonectomy have been demonstrated and are in accordance with physiologic principles.

## CONCLUSIONS

While conventional roentgenography of the pulmonary artery is often difficult, inadequate and anatomically vague, angiocardiographic visualization is simple, adequate and [illegible] cise. The angiocardiographic configuration of the normal pulmonary artery is outlined, as are the changes present in cardiac, mediastinal and pulmonary disease. These changes are considered academically and from the standpoint of improved diagnosis. Angiocardiography is indispensable in the preoperative investigation of congenital cardiac disease and facilitates exact anatomic diagnosis, often otherwise impossible during life.

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## ABSTRACT OF DISCUSSION

Dr. Harry M. Weber, Rochester, Minn.: This might well be considered a decennial presentation, for it was at the session of the American Medical Association in San Francisco in June 1938, before the Section on Pharmacology and Therapeutics, that Dr. Steinberg and Dr. Robb made their first report on the practical method they had developed of visualizing the chambers of the heart, the pulmonary circulation and the great blood vessels in man. As Dr. Dotter pointed out, angiocardiography is practically indispensable in the diagnosis of certain cardiovascular abnormalities, especially congenital ones for which, in recent years, a satisfactory surgical therapy has been developed. I refer especially to the diagnosis of the tetralogy of Fallot and its accurate differentiation from the Eisenmenger complex, the clinical indications of which are so similar. Frequently, too, the exact anatomic situation may be demonstrated with angiocardiography, demonstrated as in patent ductus arteriosus and in coarctation of the aorta, conditions in which, with conventional clinical and roentgenologic methods, diagnosis may be made but the exact pathologico-anatomic situation remains unknown, or at least poorly estimated, preoperatively. Dr. Dotter and Dr. Steinberg are now interested in applications of the method and in certain mechanical improvements to facilitate roentgenography at the proper intervals after the contrast solution is administered. I wish to thank Drs. Steinberg and Dotter for this excellent and instructive presentation. It has not only enlarged our diagnostic vista, but also done much to clarify and correct our notions about the use and limitations of our more conventional roentgenologic procedures in cardiovascular diagnosis.

Dr. Fred J. Hodges, Ann Arbor, Mich.: Having read the paper and having seen in the original the superb illustrations that Dr. Dotter prepared for us, it is too bad that they were shown under very trying conditions. His films must be studied at some length in order to appreciate their true worth. The paper by Drs. Dotter and Steinberg goes far beyond earlier contributions in the field of angiocardiography. This morning we have been shown broad and highly practical applications of the technic. In particular, the utility of angiocardiography in the study of acquired heart disease is promising. To be able to identify cor pulmonale in advance of late cardiac failure is distinctly worthwhile. Dr. Dotter's illustrations represent complete mastery of the technical procedures which, of necessity, are of an exacting type. At my institution there has been constructed a considerably modified, multiple exposure x-ray camera, based on the principle introduced by Dr. Hans Jarre, of Detroit, many years ago. This apparatus makes it possible to prepare a succession of direct roentgenograms on a continuous strip of film, 8 inches wide. Frames for individual exposures are 8 by 10 inches. Exposures can be made at the rate of five per second. Technical experience at the institution thus far is meager, but I am convinced that the apparatus will be of considerable use in cardiography and that, once there is thorough familiarity with its technic, angiocardiography will find frequent applications in daily practice. Experimental runs on dogs, as well as results obtained for the relatively few patients examined thus far, have indicated that smaller, rather than larger amounts of opaque material would be desirable in demonstrating the relationships of cardiovascular structures.

I should like to ask Dr. Dotter if, in his experience, it is desirable or necessary to inject as much as 40 cc. of the contrast medium.

Dr. Leo Rigler, Minneapolis: After seeing this beautiful demonstration, I am reluctant to introduce any discordant note, but I wish to emphasize that, while angiocardiography certainly is a method of study which permits us to learn a great deal about congenital heart diseases and diseases of the pulmonary arteries, one must not be overwhelmed by the brilliant detail presented in these films and develop an inferiority complex about conventional methods of diagnosis. I think it is possible, particularly in the noncyanotic types of congenital heart disease, to make an accurate diagnosis without angiocardiography in the overwhelming majority of cases if all the diagnostic factors, including, of course, meticulous roentgenologic studies, are considered. In cyanotic heart disease, I believe that angiocardiography may well be necessary in a much larger percentage of the cases. I was most interested in Dr. Dotter's statement about pulmonic stenosis, and should be gratified to know the basis for his impression that isolated pulmonic stenosis is not rare. My only experience, in a large series of autopsies in cases of congenital heart disease of all kinds and descriptions, is that isolated pulmonic stenosis of the type found in the tetralogy of Fallot is very rare. This is of some importance in the question of whether true pulmonic stenosis, without associated defects and, at least, in its relatively early stages, actually can produce cyanosis. I should like to reemphasize Dr. Dotter's criticism of the criteria which have been given for the diagnosis of cor pulmonale. It has been my experience that the diagnosis of cor pulmonale can be made in a great many cases long before right heart failure has occurred. If one carefully studies cases of bronchial asthma, silicosis or tuberculosis, the enlargement of the right side of the heart, first indicated by enlargement of the pulmonic artery, becomes apparent long before the symptoms of actual failure, such as cyanosis and ascites, appear.

Dr. J. E. Miller, Dallas, Texas: Dr. Dotter has indicated that his cases of the Eisenmenger complex were not amenable to aortic-pulmonary anastomosis. I have 4 or 5 patients in whom I have made this diagnosis from angiocardiography, and the same may be true of them. In 1 of the patients, however, where most of the contrast material went into the pulmonary artery, instead of the aorta, the clinicians were not entirely satisfied that my impression of the Eisenmenger complex was correct. The patient was operated on, with the plan of measuring pressures in the pulmonary artery. The clinicians had indicated that anastomosis would be done provided the pressure was less than 350 mm. of water. The measurements indicated that the pressure was 300 mm. of water, plus or minus 20. The anastomosis was made, and the result was excellent. Since I have other patients with the same angiocardiographic diagnosis, there will be a clinical reevaluation; perhaps some of them will be operated on. We should not say that anastomosis is not applicable when the diagnosis of Eisenmenger's complex has been made angiocardiographically.

Dr. Charles T. Dotter: We have seen at least 2 cases of pulmonic stenosis in adults in whom we were unable to demonstrate any other cardiovascular lesion. We believe it a more common condition than formerly recognized and anticipate that studies employing catheterization of the heart will bear this out. In our experience, the diagnosis of Eisenmenger's syndrome should be made angiocardiographically only when a large, dilated, nonstenotic pulmonary artery can be demonstrated. The decision regarding operative intervention rests solely upon the shoulders of the surgeon. In closing, may I comment upon the undeserved reputation which angiocardiography has gained, namely, that it is a difficult procedure. It can be accomplished with very little special equipment, making use of a standard cassette with which one obtains only two films during an injection. All the films which you have seen today were made in that manner. For the other details of technic, may I refer you to the papers of Drs. Robb and Steinberg, published in 1938 and 1939.[2] The details have changed very little since then. I believe that angiocardiography will grow to be a commonplace method of examination, employed in all hospitals and in the hands of many radiologists.

# RETROLENTAL FIBROPLASIA

## Incidence in Different Localities in Recent Years and a Correlation of the Incidence with Treatment Given the Infants

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Retrolental fibroplasia (R. L. F.) is an ocular disease usually associated with prematurity and usually affecting both eyes. The most conspicuous diagnostic sign is the presence of a membrane, often vascularized, situated behind the crystalline lens. The presence of blood vessels in the membrane serves to differentiate retrolental fibroplasia from congenital cataract. The affected eye may be smaller than normal, the anterior chamber shallow and the ciliary body abnormally serrated. Secondary changes, such as synechiae, glaucoma and iritis, frequently develop. The disease is rarely, if ever, seen at birth but develops when the infant is between 1 and 5 months of age. It has been seen to start as a dilatation of the retinal vessels followed by exudative retinitis and subsequent retinal detachment.[1]

Retrolental fibroplasia was first associated with prematurity by Terry[2] in 1942. Since then there have been indications that the incidence has increased more in some localities than in others. The apparent increase in the frequency of the disease in recent years cannot be explained by the statement that the condition in a significant number of cases was formerly undiagnosed and therefore missed[3] or that a significantly greater proportion of premature infants survives now than in 1942.[4] To date, no satisfactory theory of the cause of retrolental fibroplasia has been proposed. It seems likely, however, that if it were demonstrated that the incidence of the disease were actually increasing, or that the incidence varied significantly from place to place, the possible number of explanations would be greatly reduced. Moreover, it might be feasible, from a knowledge of the incidence in any one locality over a period of years, or in various localities, to correlate the incidence with some factor associated with mother or infant at one particular time or place. Accordingly, studies were made of the number of premature infants born in particular hospitals in various localities, in whom retrolental fibroplasia did or did not develop. The results to be reported show that the incidence, at least in some localities, has increased and that this increased incidence correlates positively with certain treatment given to the infant, although,

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From the Departments of Ophthalmology and Obstetrics and the Howe Laboratory of Ophthalmology, Harvard Medical School; the Massachusetts Eye and Ear Infirmary; the Boston Lying-in Hospital, and the Providence Lying-in Hospital. Supported by a grant from the Foundation for Vision for the study of retrolental fibroplasia.

Mrs. Harriet D. Parish and the staffs of the record rooms and social service departments of the Boston Lying-in and Providence Lying-in hospitals gave assistance in this study; Drs. Stewart Clifford and Clement Smith gave advice and suggestions in reporting the results of the study and outlining the new vitamin and iron medication schedule to be used at the Boston Lying-in Hospital.

1. Owens, W. C., and Owens, E. U.: Retrolental Fibroplasia in Premature Infants, Tr. Am. Acad. Ophth. **53**: 18-38 (Sept.-Oct.) 1948.

2. Terry, T. L.: Extreme Prematurity and Fibroblastic Overgrowth of Persistent Vascular Sheath Behind Each Crystalline Lens, Am. J. Ophth. **25**: 203-204 (Feb.) 1942.

3. *The fact that cases of retrolental fibroplasia were not recognized* in former years cannot alone account for the present apparent rise in incidence, because the number of children born since 1942, in certain localities at least, whose vision is seriously impaired by retrolental fibroplasia far exceeds the number of cases of blindness occurring in former years which could possibly be attributed to this condition.

4. The survival rate of premature infants at the Boston Lying-in Hospital has not i [illegible] the past sixteen years. Values reported for [illegible] C.: Premature Infant, Children's Bureau [illegible] Department of Labor, Children's Bureau, 1948) suggest that any increased survival rate is small compared with the apparent increase in incidence of retrolental fibroplasia.

as indicated later, this correlation does not constitute proof of causal relation between incidence and treatment.

### PREVIOUS STUDIES

Previous reports of the incidence of retrolental fibroplasia (with the exception of the report of Owens and Owens[1] at the Johns Hopkins Hospital in Baltimore and that of Gilger[5] at the Cincinnati General Hospital, to which detailed reference will be made later) have been preliminary in nature. Ingalls,[6] quoting a personal communication from Clifford and Allers, stated that at the Boston Lying-in Hospital, between 1938 and 1945, the incidence of the disease for 254 infants, weighing less than 4 pounds (1,814 Gm.) at birth, is 13 per cent. He mentioned, however, that 4 of the infants with retrolental fibroplasia weighed more than 4 pounds at birth, in which case the incidence rate for infants weighing less than 4 pounds at birth appears to be approximately 11 per cent. He pointed out, also, that the estimate is probably conservative because of "missed" cases. The number of babies successfully investigated is not given, and Ingalls concluded that the stated incidence rate must be considered approximate.

Clifford and Weller[7] (quoting a personal communication from Allers) said that the incidence in the same nursery in Boston was 23 per cent for infants weighing between 2 and 3 pounds (907 and 1,361 Gm.) at birth. The number of infants on which this figure is based and the period of time covered are not given.

Others who have studied retrolental fibroplasia, including Krause[8] and Reese and Payne,[9] have not investigated the relative frequency of the disease in children born prematurely, although Krause reported that it has occurred in 1 out of 4,000 births at the Chicago Lying-in Hospital. The period covered by the data is not given.

### METHODS

Inquiries[10] were sent to parents or guardians of all infants born at the Boston Lying-in Hospital and Providence Lying-in Hospital who weighed 4 pounds or less at birth, to establish the present condition of their eyes. Responses were obtained concerning 93 and 95 per cent of all infants in these two locations, respectively. When an ocular defect was reported, the children were seen by an ophthalmologist who gave the diagnosis in any cases of retrolental fibroplasia. The information used in correlating incidence of the disease and factors relating to the mothers and infants was taken from the hospital records, and frequently additional information was obtained from the mothers and pediatricians concerning the treatment of the infant after discharge from the hospital.

### RESULTS

The results of the study for the Boston Lying-in and Providence Lying-in hospitals and those of Gilger for Cincinnati are shown in a series of 9 graphs in which the data are presented for each year studied. The first figure for each place shows the birth weights of infants in whom retrolental fibroplasia developed, plotted as a scattergram. The second figure presents in percentage the incidence of the disease for all of the children and the incidence, separately, for those infants weighing less than 3 pounds and those who weigh between 3 and 4 pounds at birth. The third figure shows the actual number of cases of retrolental fibroplasia, the number of children in whom this disease did not develop and, indicated by a line above the blocks, the number of children about whom no information could be obtained.

Table 1.—*Incidence of Retrolental Fibroplasia (R. L. F.) in Various Localities*

| | <3 Lb. (1,361 Gm.) | | | 3-4 Lb. (1,361-1,814 Gm.) | | | | |
|---|---|---|---|---|---|---|---|---|
| | Children with R.L.F. | Normal* Children | Incidence, Percentage | Children with R.L.F. | Normal Children | Incidence, Percentage | Years | Fraction Investigated, Percentage |
| Boston.......... | 9 | 35 | 20.5 | 1 | 105 | 0.95 | 1938-1942 | 85 |
| Boston.......... | 10 | 28 | 26.3 | 33 | 129 | 20.2 | 1943-1947 | 97 |
| Providence, R. I........... | 7 | 23 | 23.3 | 9 | 186 | 4.6 | 1941-1947 | 92 |
| Baltimore....... | 0 | 23 | 0 | 0 | 63 | 0 | 1935-1944 | 33 (est.) |
| Baltimore....... | 4 | 29 | 12.1 | 1 | 38 | 2.5 | 1945-1947 | ? |
| Hartford, Conn.......... | 4 | 3 | 57 | 4 | 24 | 14.3 | 1948 | 100 |
| New York....... | 5 | 60 | 7.7 | 1 | 141 | 0.7 | 1939-1946 | 83 |
| Cincinnati ..... | 2 | 20 | 9.1 | 5 | 69 | 6.8 | 1943-1947 | 62 |
| Birmingham, England...... | 0 | 21 | 0 | 0 | 83 | 0 | 1945 | 100 |
| | <3 Lb. (1,361 Gm. | | | 3-3 Lb. 5 Oz. (1,361-1,500 Gm. | | | | |
| Denver.......... | 2 | 8 (est.) | 20 | 0 | 4 (est.) | 0 | 1948 | 67 |
| | <2.8 Lb. (1,260 Gm.) | | | | | | | |
| Chicago †....... | 5 | 211 | 2.3 | .. | ... | .... | 1922-1947 | 97 |

* *Normal in all tables indicates simply the absence of retrolental fibroplasia.*

† It will be observed that the data given for the Chicago hospital (Michael Reese Hospital) cover a twenty-five year period. The ages of the 5 patients with retrolental fibroplasia were 2, 3, 5, 7 and 16 years (4 females, 1 male), indicating that the incidence of the disease has been and still remains low.

The data from the other cities are not presented graphically because either the number of cases of retrolental fibroplasia was too small or the period of time covered in the studies was too short. They are included, however, in this report (table 1), since they represent the only available information at this time on the incidence of this disease.

*Boston.*—There were 372 infants weighing 4 pounds or less at birth and surviving six months or more, who were born at the Boston Lying-in Hospital during the years 1938 through 1947. Of these, it was found that retrolental fibroplasia had developed in 53 and had not developed in 298; 21 could not be located. In 44 of the cases of retrolental fibroplasia, both eyes were affected; in 9, one eye only was affected. From figures 1, 2 and 3 it is evident that the incidence of the disease had increased during the second five years of the period studied (1943 through 1947), and that this increase is accounted for chiefly by an increase in cases among the heavier infants (3 to 4 pounds). Figure 3 shows that only 1 case of retrolental fibroplasia occurred in 102 premature infants weighing between 3 and 4 pounds at birth (1.0 per cent) prior to 1943, whereas in the same weight group there were 33 cases in 162 premature infants (20 per cent) in the years 1943 through 1947. The incidence during the same two periods in infants born in this hospital who weighed less than 3 pounds at birth (table 1) was 20.5 and 26.3 per cent, respectively. The year to year fluctuation in the incidence of the disease in the lighter group of infants (figure 3) may be explained by the small number of infants in this weight group.

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[5] Gilger, A. P.: Retrolental Fibroplasia in Prematurely Born Children, Am. J. Ophth., to be published.

[6] Ingalls, T. H.: Epidemiology of Encephalo-Ophthalmic Dysplasia, J. A. M. A. **138**: 261-264 (Sept. 25) 1948.

[7] Clifford, S. H., and Weller, K. F.: The Absorption of Vitamin A in Prematurely Born Infants With Experience in the Use of Absorbable Vitamin A in the Prophylaxis of Retrolental Fibroplasia, Pediatrics **1**: 505-511 (April) 1948.

[8] Krause, A. C.: Congenital Encephalo-Ophthalmic Dysplasia, Arch. Ophth. **36**: 387-444 (Oct.) 1946.

[9] Reese, A. B., and Payne, F.: Persistance and Hyperplasia of Primary Vitreous, Am. J. Ophth. **29**: 1-19 (Jan.) 1946.

[10] The data for the New York Hospital were collected by Dr. Lewis Fraad, and the diagnoses were made under the supervision of Dr. John McLean of the Department of Ophthalmology of the Cornell Medical School. The information concerning the Cincinnati General Hospital and the Hartford Hospital was supplied by Dr. Anita P. Gilger and Dr. A. C. Unsworth, respectively, and will be reported by each in detail elsewhere. The study at the Johns Hopkins Hospital in Baltimore was made by Drs. William and Ella Owens The data concerning the Colorado General Hospital in Denver were supplied by Dr. Lula O. Lubchenco and Dr. Harry H. Gordon; those for the Michael Reese Hospital in Chicago, by Dr. Julius Hess and Miss Evelyn C. Lundeen; those for Birmingham, England, by Dr. V. Mary Crosse of the Public Health Department of Birmingham.

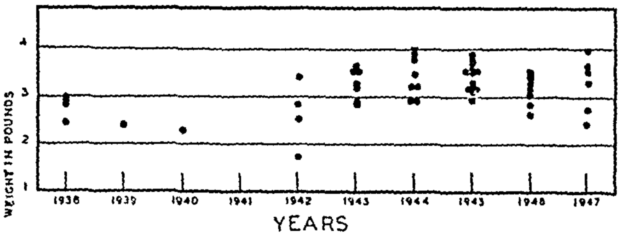

Fig. 1.—Birth weights of premature infants in whom retrolental fibroplasia developed who were born at the Boston Lying-in Hospital.

*Providence.*—There were 246 infants weighing less than 4 pounds at birth and surviving six months or more, who were born at the Providence Lying-in Hospital during the years 1941 through 1947. Of these, it was found that retrolental fibroplasia had developed in 16 and had not developed in 218; 12 could not be located. In 14 of the cases of retrolental fibroplasia both eyes were affected; in 2, one eye only was affected. Figure 4 shows that, unlike the situation at the Boston hospital, the retrolental fibroplasia occurred in the 3 to 4 pound weight group with approximately the same frequency throughout the period of study. Figure 5 shows that the total incidence of the disease has not varied significantly throughout the eight year period. The high incidence observed in the light weight group during the years 1942 through 1944 is not significant because of the small number of infants in this group (fig. 6).

*Cincinnati.*—There were 156 infants weighing less than 4 pounds at birth, presumably living at the time the survey was made, who were born at the Cincinnati General Hospital during the years 1943 through 1947. Of these, it was found that retrolental fibroplasia had developed in 7 and not in 89; 60 could not be located.

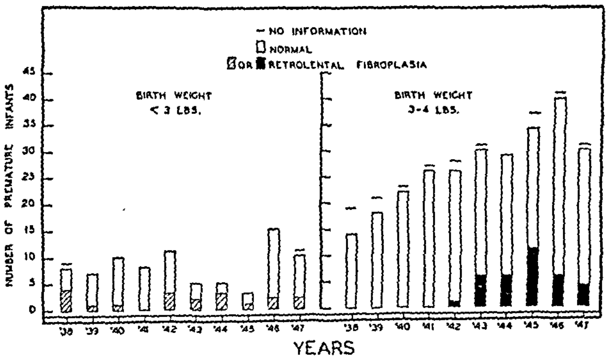

Fig. 2.—The number of premature infants born at the Boston Lying-in Hospital (top line), the number of cases of retrolental fibroplasia (cross hatch for the birth weight group under 3 pounds and solid blocks for the birth weight group 3 to 4 pounds) and the number of premature infants known to be normal with respect to retrolental fibroplasia (open blocks).

The number of cases of retrolental fibroplasia in children born at this hospital is too small to permit any conclusions with regard to distribution by years.

*Other Cities.*—The data regarding the incidence of retrolental fibroplasia for other cities are summarized and presented in table 1, along with a similar condensation of the data for the three cities already reported. The table shows that the incidence in the infants weighing less than 3 pounds at birth is higher in every location (where any cases of retrolental fibroplasia exist) than it is in the group weighing 3 to 4 pounds at birth. It shows also that there is a considerable variation in the incidence in different localities.

The data thus far presented suggest that the incidence of retrolental fibroplasia has increased in recent years, particularly in the 3 to 4 pound weight group in the Boston hospital. The question arises as to whether any particular factor or factors associated with the mothers or infants can be correlated with the increased incidence of the condition. Those factors affecting the mothers or infants may be divided into two classifications. The first (tables 2 through 13) includes those factors affecting some mothers or some infants throughout the ten year period studied. The second includes those factors which either were absent entirely or varied significantly from one part of the study period to another, but which applied to all cases, once initiated.

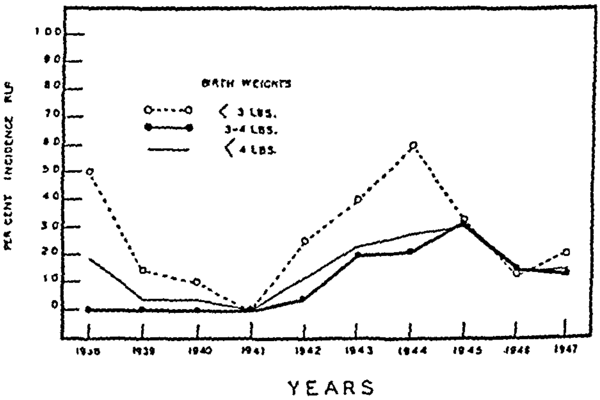

Fig. 3.—The incidence of retrolental fibroplasia in premature infants born at the Boston Lying-in Hospital.

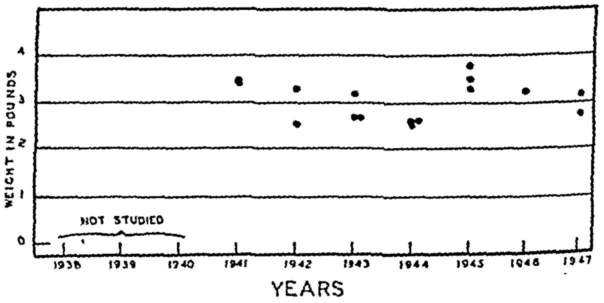

Fig. 4.—Birth weights of premature infants in whom retrolental fibroplasia developed who were born at the Providence Lying-in Hospital.

In the first classification it is possible to determine whether the incidence of retrolental fibroplasia in any particular group is different from that in the total group. The factors considered are:

Parity (table 2)
Age of mother (table 3)
Rh type (table 4)
Type of delivery (table 5)
Analgesic administered (table 6)
Anesthesic administered (table 7)
Causes of prematurity (table 8)

Single or multiple births (table 9)
Sex of the infant (table 10)
Presence of congenital abnormalities (table 11)
General information (table 12)
Miscellaneous (table 13)

There appears to be a significant correlation between the incidence of retrolental fibroplasia and only two of the aforementioned factors. The first of these is seen in table 2, which shows that the incidence of retrolental fibroplasia in offspring of primiparous women (45 per cent of the total) was 9.5 per cent compared with 19.7 per cent in those of multiparous women. This difference in incidence may be said to be significant, since the probability that it would occur by chance is much less than 1 in 100. The number of cases involved in each parity group above 1, taken separately, is too small to determine whether the incidence rises progressively with parity.

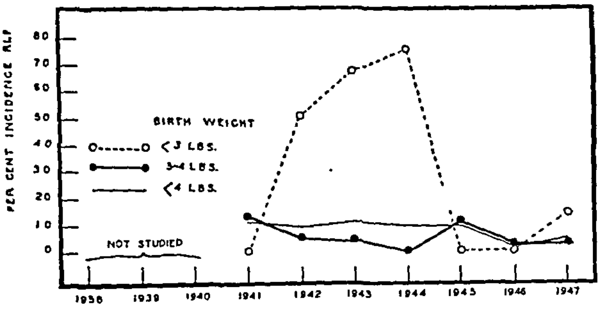

Fig. 5.—The incidence of retrolental fibroplasia in premature infants born at the Providence Lying-in Hospital.

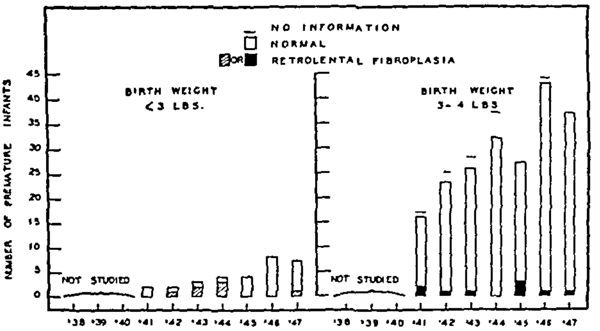

Fig. 6.—The number of premature infants born at the Providence Lying-in Hospital (top line), the number of cases of retrolental fibroplasia (cross hatch for the birth weight group under 3 pounds and solid blocks for the birth weight group 3 to 4 pounds) and the number of premature infants known to be normal with respect to retrolental fibroplasia (open blocks).

The second instance of possibly significant correlation is seen in table 12, which shows that infants in whom retrolental fibroplasia subsequently developed remained in the nursery, water jacket incubator and in oxygen for longer periods than the infants in whom retrolental fibroplasia did not develop. This suggests that the general health of the infants in whom retrolental fibroplasia subsequently developed may have been poorer than of those whose eyes remained normal, or possibly that the latter were larger infants requiring a shorter stay in the hospital.

The distribution of cases of retrolental fibroplasia according to sex is also of possible significance. Table 10 shows that the disease occurs more frequently in male (14.0 per cent) than in female (9.2 per cent) subjects. The probability that this distribution would occur by chance is between 1 in 10 and 1 in 20. The distribution by sex at the Boston hospital was approximately constant from year to year, except for 1945, in which year all 12 cases of retrolental fibroplasia occurred in male subjects. The probability that this would occur by chance, considering the average incidence in all of the years in male and female subjects in the Boston hospital, is less than 1 in 1,000,000. We are unable to account for the distribution by sex in this year, or for the much higher incidence observed in 1945 compared with that in the years 1943, 1944, 1946 and 1947.

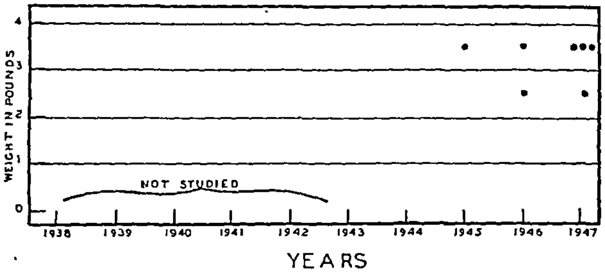

Fig. 7.—Birth weights of premature infants in whom retrolental fibroplasia developed who were born at the Cincinnati General Hospital.

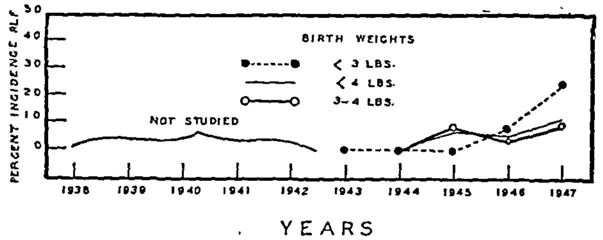

Fig. 8.—The incidence of retrolental fibroplasia in premature infants born at the Cincinnati General Hospital.

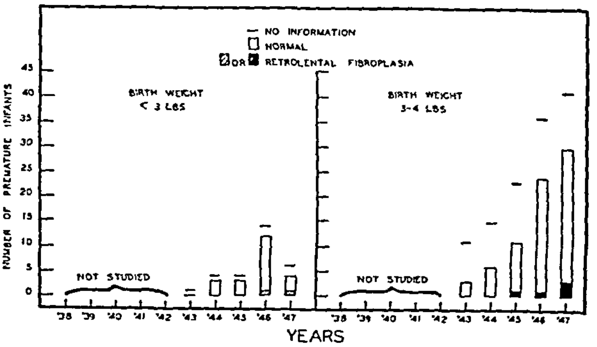

Fig. 9.—The number of premature infants born at the Cincinnati General Hospital (top line), the number of cases of retrolental fibroplasia (cross hatch for the birth weight group under 3 pounds and solid blocks for the birth weight group 3 to 4 pounds) and the number of premature infants known to be normal with respect to retrolental fibroplasia (open blocks).

Gilger (Cincinnati), who has similarly attempted to correlate incidence with factors affecting mothers or infants, found no correlation between the incidence of the disease and the age of the mother, frequency of uterine bleeding, virus infections during pregnancy, chronic illness during pregnancy, causes of prematurity or race. She found, as we did, a probable positive correlation between the parity of the mothers and the incidence of retrolental fibroplasia, since all 7 of the cases of the condition which she reports occurred in infants of multiparous mothers. The probability that this would occur by chance is 1 in 10. She did not investigate the length of stay in the hospital and other such factors.

The use of the analgesic meperidine hydrochloride was the only factor of those thus far considered in which there was any appreciable variation in frequency of administration in one part of the period investigated compared with another. This drug was used more frequently in the last five year period and was administered to 77 mothers in 166. The incidence of retrolental fibroplasia in infants born to mothers receiving meperidine hydrochloride was 23.5 per cent compared with an incidence of 19 per cent in infants whose mothers did not receive the drug. This difference is not significant.

The second classification, viz., the factors which changed from one part of the 1938 through 1947 period compared with another part, and which once initiated affected all infants, will now be considered. As mentioned previously, the most striking instance of increased incidence (fig. 2) occurred during the second half (1943 through 1947) of the ten year period in infants weighing between 3 and 4 pounds. Since any correlation between treatment and incidence might be expected to be most evident in this group in which the increase in incidence was most apparent, the following data are concerned with this birth weight group only (3 to 4 pounds). Examination of the hospital records showed that the treatment of the infants varied significantly with time in three respects only: first, administration of a multiple vitamin preparation in which the fat-soluble vitamins are made miscible with water; secondly, administration of iron in greatly increased quantities, and thirdly, more frequent administration of oxygen.

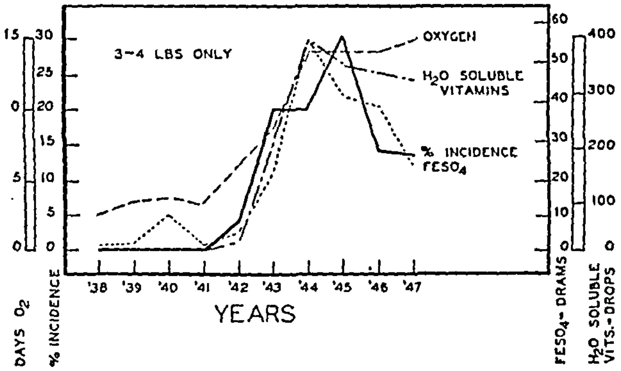

Fig. 10.—Correlation between the incidence of retrolental fibroplasia in premature infants born at the Boston Lying-in Hospital, and the administration of oxygen, ferrous sulfate (1 dram contains 1 grain, 65 mg. iron sulfate) and vitamin supplements given in a water-miscible form.

To determine whether there was a significantly positive correlation between the increased incidence and the use of any or all of these three agents, the average actual amount administered per infant per hospital stay was plotted along with the incidence of the disease for the same period. This method of representing the data is necessarily arbitrary, but since all three forms of treatment were used for essentially all of the infants, this method of averaging seems to represent a valid method for comparing change in incidence with change in quantity of the agent administered. From figure 10 it may be seen that the incidence rises along with the total amount of the water-miscible vitamin preparation and the total amount of iron given. The graphs also show that the maximum quantity of the water-miscible vitamin preparation and iron given and the maximum incidence of retrolental fibroplasia do not correspond precisely. The correlation between rise in incidence and dosage is less striking for oxygen than for the water-miscible vitamin preparation and for iron.

Table 2.—*Parity,* Boston Lying-in Hospital*

| Para | Normal Children | Children with R.L.F. | Incidence, Percentage |
|---|---|---|---|
| 1 | 143 | 15 | 9.5 |
| 2 | 67 | 13 | 16 |
| 3 | 33 | 13 | 28 |
| 4 | 20 | 4 | 17 |
| 5 | 13 | 4 | 24 |
| 6 | 5 | 0 | 0 |
| 7 | 1 | 1 | 50 |
| 8 | 5 | 1 | 17 |
| 9 | 4 | 0 | 0 |
| 10 | 1 | 0 | 0 |
| Over 10 | 1 | 1 | 50 |
| Unreported | 5 | 1 | 17 |
| Total multiparas | 150 | 37 | 19.7 |
| Total | 298 | 53 | 15.1 |

* The percentage of the total group of premature infants whose mothers were primiparas does not differ significantly from the percentage of the total number of term babies born of primiparous mothers. This was true also for mothers who gave birth to their second and third, fourth and fifth, sixth child or more.

Additional information concerning the possible correlation between the three forms of treatment considered herein and the incidence of retrolental fibroplasia can be obtained by comparing the treatment with respect to these three items and the incidence of the condition in other localities where sufficient data regarding treatment are available.

Table 3.—*Age of Mother, Boston Lying-in Hospital*

| Years | Normal Children | Children with R.L.F. | Incidence, Percentage |
|---|---|---|---|
| 16-25 | 89 | 14 | 14 |
| 26-35 | 146 | 27 | 16 |
| 36-45 | 52 | 10 | 16 |
| Unreported | 11 | 2 | 15 |
| Total | 298 | 53 | 15.1 |

Table 4.—*Rh Type,* Boston Lying-in Hospital*

| Type † | Normal Children | Children with R.L.F. | Incidence, Percentage |
|---|---|---|---|
| Rh + | 67 | 16 | 19 |
| Rh — | 13 | 5 | 28 |

* Years 1945, 1946 and 1947 only.

† In the white population the distribution according to Rh type is 85 per cent Rh positive and 15 per cent Rh negative. The distribution found here in normal persons is 84 per cent Rh positive and 16 per cent Rh negative, and the distribution in infants with retrolental fibroplasia is 76 per cent Rh positive and 24 per cent Rh negative. In this small sample there is no deviation from the normal either with respect to the normal infants or those in whom retrolental fibroplasia developed.

Table 14 (3 to 4 pound weight group only) presents data concerning the administration of water-miscible vitamins[11] and iron given infants in the hospitals studied in other cities in comparison with that given at the Boston hospital. For comparative purposes in the table, the quantities are listed as zero when not given, and higher or lower than the middle range of quantities used at the Boston hospital.

From this table it can be seen that the incidence is 1 per cent or less in those hospitals in which low doses of iron were given either without vitamins in water-miscible form (Boston 1938 through 1942, New York, Birmingham) or with vitamins in this form in low dosages (Baltimore). The incidence is intermediate (between 1 and 20 per cent) in those hospitals in which iron or the amount of water-miscible vitamin preparation used is high (Cincinnati and Providence, group 1, respectively). These data, therefore, show that in cities other than Boston there is also some degree of positive correlation between the incidence of retrolental fibroplasia and the quantity of vitamins given in a water-miscible form or the amount of iron administered. A possible exception to this correlation may be seen from the second group at Providence, where no water-miscible vitamins were administered, but the incidence of retrolental fibroplasia was 4 per cent—an intermediate value.[12] In evaluating the results of such a comparison it is necessary to keep in mind that the regimen may be altered after the infant is sent home. Accurate information concerning home care is difficult to obtain.

Table 5.—*Type of Delivery, Boston Lying-in Hospital*

| Type | Normal Children | Children with R.L.F. | Incidence, Percentage |
|---|---|---|---|
| Breech | 61 | 12 | 17 |
| Transverse | 7 | 5 | 42 |
| Low forceps | 84 | 6 | 7 |
| Cesarian | 37 | 10 | 21 |
| Normal | 153 | 22 | 13 |
| Unreported | 12 | 0 | 0 |
| Average incidence | | | 15.1 |

Table 6.—*Analgesic Administered, Boston Lying-in Hospital*

| Analgesic | Normal Children | Children with R.L.F. | Incidence, Percentage |
|---|---|---|---|
| Amobarbital | 29 | 4 | 12 |
| Meperidine hydrochloride | 78 | 23 | 22.8 |
| Phenobarbital | 51 | 8 | 13.5 |
| Magnesium sulfate | 46 | 6 | 12 |
| Morphine | 27 | 6 | 18 |
| Pentobarbital sodium | 35 | 2 | 5 |
| Pantopon * | 31 | 7 | 18 |
| Paraldehyde | 16 | 5 | 24 |
| Scopolamine | 147 | 29 | 16 |
| "Seconal sodium" (sodium 5-allyl-5-[1-methylbutyl] barbiturate) | 112 | 21 | 16 |
| Average incidence | | | 15.1 |

* A proprietary preparation containing the total opium alkaloids in the form of soluble hydrochlorides.

We believe that, so far as the factors cited herein may operate to increase the incidence of retrolental fibroplasia, they do so indirectly and not through a direct toxic effect. This belief is supported by the observation that the incidence of the condition in infants under 3 pounds was much less influenced by the presence or absence of these factors from one locality to another, although the incidence was higher than in the heavier infants (3 to 4 pounds). One may suppose that, all other factors remaining constant, an added influence of some kind may be necessary before retrolental fibroplasia develops in any significant number of the heavier infants. The primary mechanism, however, presumably is the same in both weight groups.

Table 7.—*Anesthetic Administered, Boston Lying-in Hospital*

| Type | Normal Children | Children with R.L.F. | Incidence, Percentage |
|---|---|---|---|
| Gas | 52 | 14 | 21 |
| Ether | 107 | 18 | 14 |
| Vinyl ether | 13 | 7 | 35 |
| Spinal | 98 | 16 | 14 |
| Average incidence | | | 15.1 |

Table 8.—*Causes of Prematurity, Boston Lying-in Hospital*

| Cause | Normal Children | Children with R.L.F. | Incidence, Percentage |
|---|---|---|---|
| Spontaneous delivery | 178 | 32 | 15 |
| Preeclampsia | 76 | 10 | 12 |
| Premature separation of placenta | 31 | 8 | 20 |
| Placenta previa | 17 | 5 | 23 |
| Premature rupture of membranes | 44 | 7 | 14 |
| Hydramnios | 5 | 0 | 0 |
| Unreported | 13 | 0 | 0 |
| Average incidence | | | 15.1 |

Table 9.—*Single and Multiple Births, Boston Lying-in Hospital*

| Type | Normal Children | Children with R.L.F. | Incidence, Percentage |
|---|---|---|---|
| Single | 230 | 42 | 15.4 |
| Twins | 63 | 11 | 14.9 |
| Triplets | 5 | 0 | 0 |
| Total | 298 | 53 | 15.1 |

Table 10.—*Sex of the Infant in Various Localities*

| | Male | | | Female | | |
|---|---|---|---|---|---|---|
| | Normal Children | Children with R.L.F. | Incidence, Percentage | Normal Children | Children with R.L.F. | Incidence, Percentage |
| Boston | 127 | 24 | 15.9 | 171 | 29 | 14.5 |
| Providence, R. I. | 95 | 11 | 10.3 | 114 | 5 | 4.2 |
| Cincinnati | 37 | 7 | 15.9 | 52 | 0 | 0 |
| Total | 259 | 42 | 14.0 | 337 | 34 | 9.2 |

Some comment is in order regarding the difference between the administration of vitamins in water-miscible form and in other forms. Lewis and his co-workers[13] and Clifford and Weller[7] have shown that the absorption of vitamin A by premature infants when the vitamin is given in a water-miscible form is much higher than it is from an oil-soluble preparation.[14] An infant, therefore, may be capable of absorbing more vitamin A from a water-miscible preparation of 5,000 units of vitamin A than from an oil-soluble preparation of 15,000 units. The water-soluble vitamins presumably are equally well absorbed whether administered in water or accompanying vitamins A and D in the water-miscible form. If, then, the administration of vitamins in a water-miscible form plays a part in increasing the incidence of retrolental fibroplasia, vitamins A or D are probably the ones involved. Since the solvent of the water-miscible preparation used in Boston has been changed several times during the period in which it was used, without a significant change in the incidence of retrolental fibroplasia, it is presumably innocuous. In all the hospitals not using the water-miscible preparation, vitamin A was administered in doses of about 15,000 units per day in an oil preparation, except in Boston in the years 1938 through 1942 when no vitamin A was given.

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[11] Each drop of the standard preparation used at the Boston hospital provided on the average: vitamin A, 500 units; thiamine, 0.1 mg.; riboflavin, 0.1 mg.; ascorbic acid, 5 mg.; vitamin D, 100 U.S.P. units, and niacinamide, 0.5 mg.

[12] Two of the 4 children with retrolental fibroplasia in Hartford (table 1) were also known never to have received iron or vitamins in a water-miscible form. Data are not available at present concerning treatment administered the children in this group in whom retrolental fibroplasia did not develop.

[13] Lewis, J. M., Bodansky, O., Birmingham, J., and Cohlan, S. Q.: Comparative Absorption, Excretion, and Storage of Oily and Aqueous Preparations of Vitamin A, J. Pediat. 31:496-508 (Nov.) 1947.

TABLE 11.—*Presence of Congenital Abnormalities, Boston Lying-in Hospital*

| Abnormalities | Normal Children | Children with R.L.F. | Incidence, Percentage |
|---|---|---|---|
| Hemangioma | 12 | 2 | 14 |
| Umbilical hernia | 17 | 0 | 0 |
| Congenital heart disease | 12 | 0 | 0 |
| Undescended testes | 11 | 1 | 8 |
| Hydrocephalus | 3 | 0 | 0 |
| Other head deformities | 6 | 0 | 0 |
| Malformed genitalia | 8 | 3 | 27 |
| Others | 15 | 2 | 12 |
| Average incidence | | | 15.1 |

TABLE 12.—*General Information, Boston Lying-in Hospital*

| Item | Days | |
|---|---|---|
| | Normal Children | Children with R.L.F. |
| Average period in nursery | 46 | 56 |
| Average period in water jacket incubator | 12 | 19 |
| Average period in oxygen | 12 | 21 |

The use of cow's or breast milk for feeding in various localities is difficult to correlate with the incidence of retrolental fibroplasia, since in many hospitals the use of breast milk varies so much with the available supply. Nevertheless, from the data which are available the incidence of this condition does not appear to correlate with the differential use of cow's and breast milk.

## CONCLUSIONS

In certain areas the incidence of retrolental fibroplasia has increased significantly in recent years. In Boston, where the data are most complete, the rise in incidence was found chiefly in the 3 to 4 pound (1,361 to 1,814 Gm.) weight group. The greater frequency of retrolental fibroplasia correlates with several changes in treatment of premature infants; i. e., use of vitamin supplements in water-miscible form and increased use of iron. While a positive correlation between rise in incidence of the disease and change in treatment does not constitute proof of any causal relation between the two, nevertheless it is suggestive that the medication used may be of etiologic significance.

To test this possibility, we, in conjunction with the staffs of the Boston Lying-in and certain other hospitals, are planning to investigate the effect on the incidence of retrolental fibroplasia of omitting the iron and also the multiple vitamin preparation in water-miscible form. It is planned to withhold the iron until the premature infant is between 2 and 3 months of age and substitute for the multiple vitamin preparation vitamin D alone, in a water-miscible form (1,000 units daily). In addition, the diet will be supplemented with 50 to 100 mg. of vitamin C daily. No vitamin A or vitamin B-complex will be given. The results of this study will be made available as soon as a sufficient number of infants has been tested to permit statistically valid conclusions concerning the true role of the aforementioned forms of treatment in producing retrolental fibroplasia.

This study has been concerned wholly with premature infants whose birth weights were less than 4 pounds (1,814 Gm.). The incidence of retrolental fibroplasia in heavier premature infants and in term babies has not been investigated, but, from the number of known cases of the disease in such infants, it must be extremely low. Before one draws inferences regarding possible harmful effects from the use of water-miscible vitamin preparations or iron in treating heavier premature infants or term babies, one should consider these facts.

TABLE 13.—*Miscellaneous Factors, Boston Lying-in Hospital*

| Factor | Normal Children | Children with R.L.F. | Incidence, Percentage |
|---|---|---|---|
| Complete blood cell count (baby) | 99 | 17 | 15 |
| X-ray (baby) | 67 | 13 | 16 |
| X-ray (mother) | 111 | 25 | 18 |
| Transfusion (baby) | 28 | 9 | 24 |
| Clysis (baby) | 32 | 8 | 20 |
| Nonocular infection (baby) | 56 | 13 | 19 |
| Eye infection (baby) | 35 | 6 | 15 |
| Infection (mother) | 74 | 16 | 18 |
| Average incidence | | | 15.1 |

TABLE 14.—*Correlation of Treatment with Incidence in 3-4 Pound Weight Group*

| | Years | Multiple Water-Miscible Vitamin Preparation * | Iron * | Incidence of R.L.F., Percentage |
|---|---|---|---|---|
| Boston | 1938-1942 | 0 | L | 0.9 |
| Boston | 1943-1947 | H | H | 20.2 |
| Baltimore | 1935-1947 | L | L | 1.0 |
| New York | 1939-1946 | 0 | 0 | 0.7 |
| Cincinnati | 1943-1947 | 0 | H | 6.8 |
| Birmingham, England | 1945 | 0 | L | 0 |
| Providence, R. I. | 1938-1947 | H | L | 5.2 |
| Providence, R. I. | 1938-1947 | 0 | L | 4.0 |

* The quantities are listed as zero when not given, and higher (H) or lower (L) than the middle range of quantities used at the Boston hospital.

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[14] The use of the vitamin supplement in water-miscible form was inaugurated at the Boston Lying-in Hospital in 1943 to increase the amount of vitamin A absorbed by the premature infant. This therapy was instigated as a result of studies by Warkany (Warkany, J.: Congenital Malformations Induced by Maternal Nutritional Deficiency, J. Pediat. 25: 476-480 [Dec.] 1944) in which it was shown that a disease resembling retrolental fibroplasia in many respects could be produced in young rats born of mothers who were deficient in vitamin A.

cates something of the waste factor inherent in these figures. Food waste often is especially large in institutions and public eating places, but may also be considerable in households in upper income groups.

For other nutrients apparent margins of supply over need should be generous, for foods and nutrients are seldom distributed in accordance with need among the persons in a family or among the families of a nation. Large numbers of persons probably get less than optimal quantities of one or more nutrients. Others have diets providing much larger quantities of some nutrients than the allowances suggest. If these latter groups continue to enjoy their liberal diets and if all those who consume less than recommended quantities were brought up to those levels, nutrient averages for the country as a whole would be much higher than they were in 1945 and 1946.

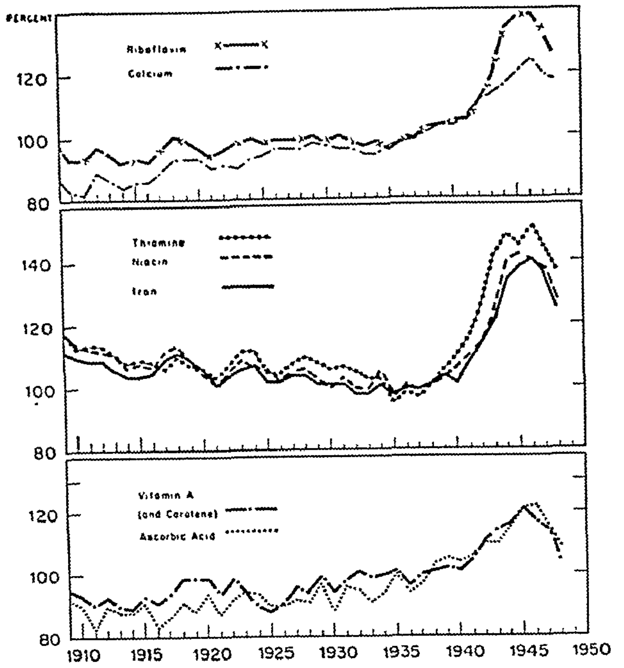

Chart 5.—Calcium, iron and vitamins in the United States per capita food supply, 1909-1948 (index numbers: 1935-1939 = 100). (Computed by the Bureau of Human Nutrition and Home Economics, United States Department of Agriculture.)

These facts should be kept in mind in any comparison of the nutrients in the per capita food supply with recommended dietary allowances. Other factors to be considered are those involved in any comparison of the calculated nutrient content of a diet with recommended allowances. For example, most tables of food composition suitable for use with foods "as purchased" make no allowance for losses that occur in home storage or in preparation for eating. For ascorbic acid and some of the B vitamins which are water soluble, heat labile and readily oxidized, these losses may be very high. On the other hand, recommended dietary allowances represent quantities to be ingested. They are considered high enough "to cover substantially all individual variations in the requirements of normal persons." However, much more needs to be known about variations in requirement, about the utilization of nutrients in the body and the possibility of synthesis of certain vitamins in the intestinal tract before a close evaluation of dietary adequacy can be made on the basis of dietary calculations and recommended allowances.

### INEQUITABLE DISTRIBUTION

Spot studies provide evidence that even in the peak years of supply, 1945-1946, many families did not have nutritionally good diets. In the summer of 1945 the Bureau of Human Nutrition and Home Economics obtained data regarding diets of families living in the open country in one county in Georgia and in one in Ohio. In the Georgia county, the food of one third of the white farm families and of two thirds of the Negro families provided less than two thirds of the dietary allowances recommended by the National Research Council, for one or more nutrients. The prevalence of such unsatisfactory diets was twice as high among sharecroppers and farm laborers as among owners and renters; it was somewhat higher among large than small families in the same income class.

Among Negro families in the Georgia county, vitamin A was the nutrient that most often seemed to be comparatively low in the diet. More than half of the families had food that provided less than two thirds of the recommended amounts. A greater consumption of green or yellow vegetables, of whole milk, butter or vitamin A fortified margarine would have increased the vitamin A value of diets. About a fourth of the families had food that furnished less than two thirds of the recommended levels of calcium and ascorbic acid, and the diets of nearly a fifth were correspondingly low in riboflavin. More milk and more vitamin C-rich fruits and vegetables would have improved the diets with respect to these nutrients also.

TABLE 1.—*Calculated Nutritive Value of U. S. Civilian per Capita Food Supply, Prewar, 1945 and 1948, Compared with Recommended Dietary Allowances (1948) of the National Research Council's Food and Nutrition Board*

| Nutrient | Nutritive Value per Capita per Day* | | | Per Capita Allowances Based on Recommendations of the National Research Council† |
|---|---|---|---|---|
| | 1935-1939 | 1945 | 1948 | |
| Food energy.......... ......cal. | 3,250 | 3,370 | 3,330 | 2,600 |
| Protein.........................Gm. | 89 | 103 | 96 | 65 |
| Calcium.........................Gm. | 0.90 | 1.08 | 1.06 | 1.06 |
| Iron..............................mg. | 13.8 | 19.0 | 17.5 | 11.6 |
| Vitamin A value ‡...............I.U. | 8,100 | 9,800 | 8,700 | 4,560 |
| Thiamine, total..................mg. | 1.54 | 2.24 | 2.09 | 1.24 |
| Thiamine per 1,000 calories......mg. | 0.47 | 0.66 | 0.63 | 0.48 |
| Riboflavin.......................mg. | 1.86 | 2.55 | 2.38 | 1.63 |
| Niacin...........................mg. | 15.4 | 21.9 | 19.9 | 12.4 |
| Ascorbic acid....................mg. | 115 | 139 | 127 | 70 |

* Computed by the Bureau of Human Nutrition and Home Economics on basis of estimates prepared by the Bureau of Agricultural Economics of apparent civilian consumption (retail basis) including foods supplied by farm and city gardens. No deductions have been made for waste of food in the home or for losses of nutrients in food preparation. No allowance has been made for nutrients added to the food supply through the use of baking powder, yeast, mold inhibitors, the added minerals in self-rising flour or for nutrients added in the processing of certain foods, such as vitamins used as antioxidants and calcium salts used in some canned foods.

† Recommended dietary allowances suggested for 17 sex-age-activity groups (National Research Council Reprint and Circular Series no. 129, Revised 1948) were weighted by the number of persons in each group according to 1948 population estimates.

‡ Vitamin A values expressed as international units, include carotene sources. Carotene was converted on the basis that 0.6 microgram of beta-carotene or 1.2 micrograms of other vitamin A-active carotenoids is equivalent to one I.U. of vitamin A. Current research suggests that many of the vitamin A values ascribed to carotene-rich foods in the literature need to be revised, and as they stand probably are too high to indicate physiologic utilization. Hence, the calculations in this table may considerably overestimate the margin above recommended allowances.

It is true in general that farm families are relatively well fed because they can and do raise so much of their own food supply. However, there are wide differences and its products other than butter averaged nearly 3 cups per day per person in 1945—as compared with less than 2 cups in 1909. As a result there was an increase of 40 per cent in the calcium content of the per capita food supply and a considerable increase in riboflavin.

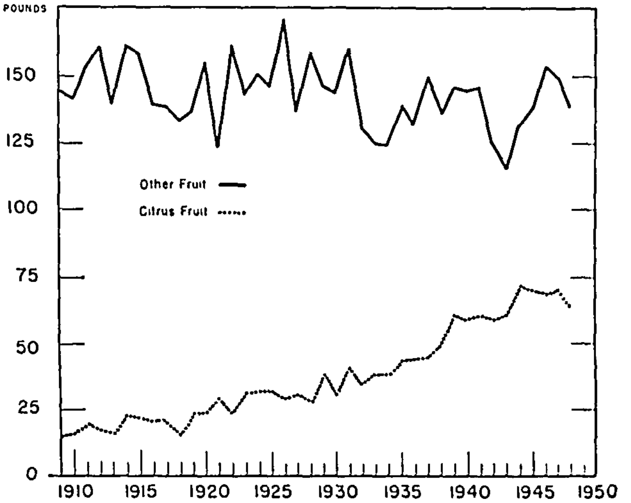

Chart 2.—Fruit: per capita consumption in the United States, 1909-1948. (Estimates of the Bureau of Agricultural Economics, United States Department of Agriculture.)

Consumption of citrus fruit (chart 2) and of leafy, green and yellow vegetables (chart 3) also has shown an upward trend during these years. More than four times as much citrus fruit was consumed in 1945 as in 1909. Yearly per capita consumption of meat, poultry and fish averaged 165 pounds (75 Kg.) or more (retail weight) in the period 1944 to 1947, compared with 137 pounds (62 Kg.) in the prewar years, 1935-1939 (chart 4).

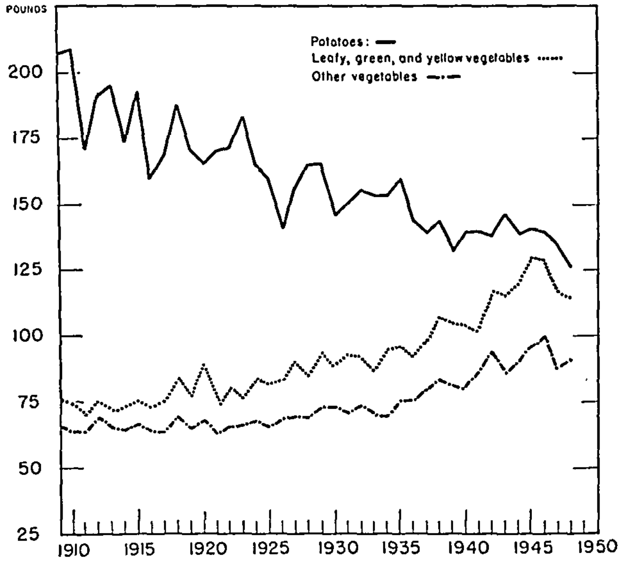

Chart 3.—Vegetables: per capita consumption in the United States, 1909-1948. (Estimates of the Bureau of Agricultural Economics, United States Department of Agriculture.)

While we have been eating more of some foods we have eaten less of others. Consumption of grain products and potatoes has declined considerably since 1909, although the downward trend was arrested during the war years, when supplies of fat and sugar were somewhat restricted.

The net effect of these shifts in consumption is shown in estimates of the nutritive value of the per capita food supply. Trends over a thirty-nine year period are shown in chart 5 in available supplies of calcium, iron and of five vitamins for which the National Research Council has suggested daily allowances. At the close of the war the calculated quantities of most nutrients were higher than at any time during the thirty-nine year period. For calcium the increase has been continuous. The similarity in the trends of calcium and riboflavin up to 1943 reflects the fact that milk is the most outstanding single food source of both; it has contributed from two thirds to three fourths of the calcium and nearly half the riboflavin in the national diet. After 1943 riboflavin increased more sharply than calcium because of its use in the enrichment of flour and bread.

For several nutrients the most striking increase has come since 1940. Higher levels of vitamin A (as carotene) as well as of ascorbic acid can be associated with the increased consumption of vegetables and fruits. The greatest increases were in thiamine, niacin, riboflavin and iron, which were higher by a third to a half than the prewar levels. About half of these increases were the result of the enrichment of flour and bread. The great similarity in the trend lines for these three nutrients is associated with their occurrence in foods. Two groups—grain products and meat, poultry and fish—furnish about half the iron and thiamine and about two thirds of the niacin in the per capita food supply.

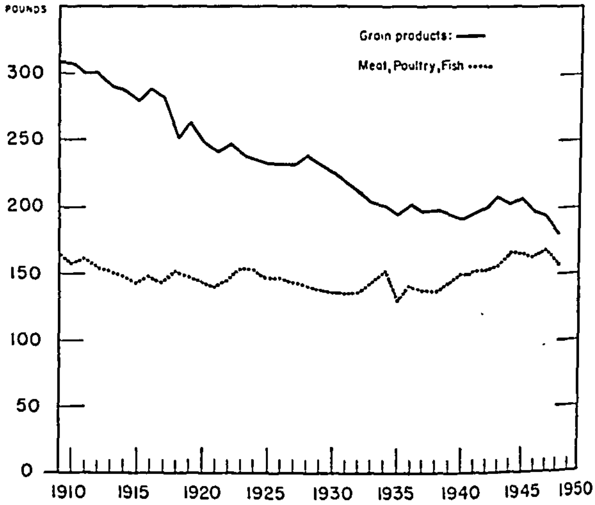

Chart 4.—Meat, poultry, fish; grain products: per capita consumption in the United States, 1909-1948. (Estimates of the Bureau of Agricultural Economics, United States Department of Agriculture.)

The peak years in average nutrient levels were 1945 and 1946, with 1948 somewhat lower. Compared with those of most countries of the world, these levels were exceedingly liberal, and they indicate a decided improvement over prewar levels in the United States, as shown in table 1. In 1935-1939 the national food supply did not furnish enough calcium to provide for every person in the country the quantities recommended by the National Research Council even if it could have been equitably distributed. Also, margins for the B vitamins were small compared with recommended amounts.

As they are now made, estimates of the nutrient content of the national food supply tend to be high. The large excess of calories over estimated needs indimeat, poultry, fats and eggs by families of different size living in Cumberland, Md.[3]

It is apparent that the larger the household size the smaller was the average expenditure per person for meat, poultry, eggs and fats. The average amounts spent in households of 2 persons would have been almost enough to purchase the quantities of these foods suggested in the moderate cost food plan of the Bureau of Human Nutrition and Home Economics. At October 1947 prices an expenditure of from $3.30 to $3.60 per person would have been needed to buy these quantities for a household of a moderately active man and woman. However, fewer than half the 2 person families in Cumberland were spending more than $3 per person; a third were spending less than $2, for which they scarcely could have purchased the quantities of these foods in the low cost food plan.

TABLE 4.—*Relation of Family Size to Diet (October 1947, Cumberland, Md.)*

| Household Size | Average Expenditure per Person per Week for Meat, Poultry, Eggs, Fats | Percentage of Families Whose Expenditures per Person for Meat, Poultry, Eggs and Fats Were in Excess of $2.00 | $2.50 | $3.00 |
|---|---|---|---|---|
| 2 or less | $3.20 | 64 | 55 | 46 |
| 3 | 2.59 | 70 | 35 | 25 |
| 4 | 2.38 | 53 | 42 | 28 |
| 5 | 1.84 | 38 | 17 | 17 |
| 6 | 1.59 | 11 | 11 | .. |
| 7 or more | 1.32 | 13 | 4 | .. |

In the 4 person household average expenditures per capita were close to the estimates of the cost ($2.50 to $2.70) of meat, poultry, eggs and fats in the moderate cost plan for 2 moderately active adults, a boy 13 to 15 and a child 7 to 9 years of age. Only 40 per cent of the 4 person Cumberland families were spending this amount or more.

In the 7 person households, average expenditures for meats, eggs and fats were only $1.32 per person per week. This is less than the amount needed in October 1947 ($1.45 to $1.60) to buy these foods in the low cost diet of the Bureau of Human Nutrition and Home Economics for a family of 2 adults, 2 teen-age and 3 younger children.

Differences between the low cost and the moderate cost food plans[4] are illustrated by the weekly quantities of foods suggested for the family of 4 previously described (table 5).

*Season.*—Few studies have been made to show seasonal differences in the nutritive content of family diets. There is evidence that considerable variation may be found, in part associated with seasonal availability of food supplies. For example, consumption of sweet potatoes in the South is highest in the months following their harvest and decreases in late winter as stored supplies diminish. This seasonal change in consumption influences the vitamin A value of diets. In towns and cities, abundant market supplies of fresh citrus fruit at reasonable prices may tend favorably to influence the ascorbic acid content of diets during late winter and spring.

Some seasonal variations may be the result of changes in the foods themselves. In general, vitamin values of foods tend to decrease during prolonged storage. Potatoes stored six months may have lost two thirds of the ascorbic acid present at harvest. Because they are eaten in fairly large quantities, potatoes constitute an important potential source of ascorbic acid. However, their contribution toward the end of their season may be much less than at the beginning. Farm families dependent for vitamin C on home-grown and stored potatoes, cabbage, apples and canned tomatoes and other vegetables may be running low in this nutrient along toward spring. Studies of ascorbic acid levels in plasma of school children in rural areas have shown this to be the case.

*Availability.*—It is usually taken for granted in the United States that if people have enough money they can buy the foods needed for a good diet. Yet this is not always true. In some sections of this country the local supply of milk has been inadequate for school feeding programs. Other examples could be cited to show how differences in availability of food supplies from one place to another may affect food consumption and the nutritional quality of the diet.

*Food Habits.*—Poor diets are often the result of poor food habits even when there is enough money for food. At almost any level of expenditure above a certain minimum, some families manage to have nutritionally good diets while others do not. For example, the figures below show the proportion of families with different kinds of diets obtained for about the same amount of money. These were village and city families in the North and West with food expenditures in 1936 between $2.77 and $3.45 per food expenditure unit per week. The proportions are as follows:

| | |
|---|---|
| Good diet | 24% |
| Fair diet | 64% |
| Poor diet | 12% |

Reports of poor food habits have been numerous in the last two or three years. Sometimes conclusions are based on the number of servings of different types of food in a day or a week as compared with some arbitrary meal pattern. In other studies conclusions relate to calculations of the nutritive value of the food consumed during a given period.

TABLE 5.—*Suggested Foods for Family of Four**

| | Low Cost Plan | Moderate Cost Plan |
|---|---|---|
| Leafy, green and yellow vegetables | 9 lb. 4 oz. | 13 lb. 4 oz. |
| Citrus fruit, tomatoes | 9 lb. 0 oz. | 11 lb. 0 oz. |
| Potatoes, sweet potatoes | 13 lb. 8 oz. | 11 lb. 0 oz. |
| Other vegetables, fruit | 7 lb. 8 oz. | 13 lb. 8 oz. |
| Milk (or its equivalent)† | 22 qt. | 23½ qt. |
| Meat, poultry, fish | 7 lb. 8 oz. | 10 lb. 8 oz. |
| Eggs | 20 (eggs) | 28 (eggs) |
| Dry beans and peas, nuts | 1 lb. 6 oz. | 12 oz. |
| Flour, cereals ‡ | 14 lb. 4 oz. | 12 lb. 4 oz. |
| Fats and oils § | 3 lb. 4 oz. | 3 lb. 10 oz. |
| Sugar, sirups, preserves | 3 lb. 4 oz. | 3 lb. 14 oz. |

* Two adults, a boy 13 to 15 years and a child 7 to 9 years.
† In cheese, cream, ice cream.
‡ Count 1½ pounds (680 Gm.) of bread or baked goods as 1 pound (454 Gm.) of flour.
§ Includes butter, bacon, salt pork.

A recent analysis of some 25,000 one day food records throws light on current food habits in four areas studied by the United States Public Health Service under their Nutritional Appraisal and Demonstration Program. These food records were obtained from persons, a large proportion of whom were children, being examined for physical evidence of nutritional deficiency. In one area in the suitability of individual farms for producing different kinds of food. Farm tenure makes a difference, also. Farm owners and renters are more likely to have extensive programs of food production for household use than are sharecroppers and tenants.

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[3] Bureau of Human Nutrition and Home Economics: Unpublished ata.

[4] Based on September 1948 food plans. The following publications on d plans may be obtained from the Bureau of Human Nutrition and e Economics, United States Department of Agriculture: AIS-21, od for Two"; AIS-59, "Food for the Family with Young Children"; 71, "Food for the Family with School Children," and Miscellaneous n 662, "Helping Families Plan Food Budgets."

In the Ohio county, where income levels were somewhat higher and a greater proportion of the farm families were owners, family diets were somewhat better than in the Georgia county.

Table 2.—*Consumption in a Week by Families of Husband and Wife and 1 or 2 Children Under 16, in New England, Middle Atlantic and North Central Villages, 1935-1936* *

| Income Class (Dollars) | Families, No. | Milk Equivalent,† Qt. | Eggs, Doz. | Meat, Poultry, Fish, Lb. | Fats,‡ Lb. | Flour Equivalent,§ Lb. | Dry Beans and Peas, Lb. | Potatoes, Sweet Potatoes, Lb. | Fresh Vegetables, Lb. | Fresh Fruit, Lb. |
|---|---|---|---|---|---|---|---|---|---|---|
| 0-499...... | 9 | 10.7 | 1.3 | 4.9 | 2.7 | 10.3 | 0 9 | 16.2 | 4.4 | 6.4 |
| 500-999.... | 108 | 10.2 | 1.5 | 6.4 | 2.9 | 10.0 | 0.5 | 12.6 | 4.5 | 6.4 |
| 1,000-1,499 | 171 | 12.3 | 1.7 | 8.0 | 3.0 | 10.0 | 0.4 | 12.5 | 5.8 | 8.2 |
| 1,500-1,999 | 83 | 13.4 | 1.7 | 9.6 | 3.0 | 9.9 | 0.3 | 11.0 | 7.6 | 11.0 |
| 2,000-2,999 | 51 | 15.8 | 1.9 | 9.9 | 3.1 | 11.0 | 0.2 | 11.0 | 7.9 | 12.6 |
| 3,000-4,999 | 12 | 15.7 | 1.5 | 10.9 | 3.3 | 9.3 | 0.6 | 12.5 | 8.6 | 12.2 |

* Stiebeling, H. K.; Monroe, D.; Phipard, E. F.; Adelson, S. F., and Clark, F.: Family Food Consumption and Dietary Levels, Five Regions, Miscellaneous Publication 452, United States Department of Agriculture, 1941.

† Approximately the quantity of fluid milk to which the various dairy products (except butter) are equivalent in minerals and protein.

‡ Includes butter, bacon and salt pork.

§ Two thirds of the weight of baked goods has been added to that of flour, meals and cereals.

*Money for Food.*—Too little money for food is still a major cause of poor diets. In the Georgia county studied four fifths of the open country families had net money incomes of less than $1,000 in 1944-1945; in the Ohio county two fifths of the families had incomes under $1,000. Although in the country as a whole per capita incomes were more than twice as high in 1948 as in 1940, food prices also about doubled in that period. Food costs affect everyone, whereas not all families have shared equally in income advances. Consequently, large numbers cannot afford to buy the kinds and quantities of foods needed for good diets.

Food for 4 persons in quantities and types included in the city worker's family budget developed by the Bureau of Labor Statistics would have cost about $20 a week in June 1947 in the 34 cities in which the budget was priced. This budget represents a modest but fairly adequate standard of living. The kinds and quantities of food included are typical of those purchased by American families whose diets provide approximately the dietary allowances recommended by the Food and Nutrition Board of the National Research Council.

The trend in food prices is shown by the following figures. To follow a low cost food plan prepared by the Bureau of Human Nutrition and Home Economics, a family of 4 might have spent at average city prices:

| | |
|---|---|
| June 1936 | $ 9.00-$10.00 |
| June 1942 | 10.00- 11.00 |
| June 1945 | 13.00- 14.00 |
| June 1948 | 18.00- 20.00 |

In 1948 it would have taken about 50 per cent of a $2,000 family income to provide this diet and 35 per cent in 1945. Figures are not available to show how many 4 person families earned $2,000 or less in 1948. In 1945 it was estimated that about one fourth of the 4 person families in the United States had incomes under $2,000. Food costs for larger families are proportionately higher, of course. Of the total number of families of 5 or more persons, 30 per cent had incomes under $2,000 in 1945.

Even for small families food costs are frequently a problem. A fifth of the 2 person families had incomes under $1,000 in 1945. Expenditures for this low cost adequate diet would have amounted to $10 or $11 a week in June 1947, or about 55 per cent of the weekly share of an income of $1,000 for the year.

Even with the income increases that took place in 1947 and 1948, it is likely that thousands of families are spending a relatively large share of the family income for food at the expense of other needs and that unless they spend this money for food in a nutrition-wise fashion, and so handle and prepare the food as to conserve food values to the utmost, diets are deteriorating accordingly.

The relation of income to food consumption has been shown by many dietary studies. This relationship is most clearly shown by data from a fairly homogeneous sample—that is, from families of similar composition living in the same kind of community in the same region. Some of the most recent dietary studies were made during the war years when food rationing influenced normal consumption patterns and obscured somewhat the full effects of income. Hence the data selected to show the relation of income to diet in table 2 are from a nationwide study in 1935-1936; they show weekly consumption of selected foods by families of husband and wife, and 1 or 2 children under 16, living in villages of the New England, Middle Atlantic and North Central regions.

In successively higher income classes these families used larger quantities of milk, meat, fresh vegetables and fresh fruit. Consumption of eggs and fats increased slightly and that of grain products (in terms of flour equivalent) changed little, while quantities of dried peas and beans and of potatoes declined.

*Family Size.*—The kind of diet a family can have depends not only on family income but on the number of persons that income must support. Within a given income class, total expenditures for food increase with increasing family size, but food expenditures per person decrease. The figures in table 3 show food expenditures in September-October 1944 of city families with incomes for the year between $2,000 and $3,000[2]:

Table 3.—*Food Expenditures of City Families with Annual Incomes of $2,000 to $3,000 (September-October 1944)*

| Number of Persons in Family | Average Food Expense in 1 Week | |
|---|---|---|
| | Per Family | Per Person |
| 1 | $ 9.76 | $ 9.76 |
| 2 | 14.42 | 7.21 |
| 3 | 16.53 | 5.51 |
| 4 | 18.58 | 4.64 |
| 5 | 20.55 | 4.11 |
| 6 or more | 24.51 | 4.08 or less |

While there may be some economy in buying food in larger quantity, it is relatively small compared with the added cost of feeding more persons. The result is that diets of large families tend to contain smaller quantities of protective foods and, therefore, are less likely to be adequate nutritionally than diets of small families at the same income level.

Additional data on the relation of family size to the character of the diet are given below. These figures show the estimated expenditures in October 1947 for

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[2] Wartime Food Purchases, Bulletin 838, United States Department of Labor, 1945.

Perhaps almost as important as the food itself is the educational experience provided by the school lunch. Eating well planned, well cooked meals day after day cannot fail to be influential in establishing good food habits. This experience will be most effective if accompanied with an integrated program of nutrition education throughout the curriculum.

The present federal school lunch program operates under the National School Lunch Act, which was passed in 1946. In the school year ending June 1948, nearly 45,000 schools participated in the indemnity plan, which means that sponsors were reimbursed by the government for part of the local purchases of food, provided that the meals served met certain specifications. In the peak months more than 6,000,000 children had a school lunch, with the peaks maintained longer than in 1947. Indications are that as the states work out better provisions for administering the program it will expand and go forward on a more stable and permanent basis.

In addition to the federal assistance given by reimbursement in the indemnity plan, the Department of Agriculture makes available for use in the lunch program special purchases of certain foods. These foods provide an important nutritional contribution to the meals served. Purchases for the year 1947-1948 included such foods as nonfat dry milk, cheese, dried eggs, dried fruits, peanut butter, sweet potatoes and concentrated orange juice.

The school lunch program provides one means for more equitable distribution of national food supplies in accordance with need. If expanded to include all children in school it would go far to safeguard the nutritional health of this group. Less attention has been given in the United States to meeting the special food needs of expectant and nursing mothers, infants and preschool children. In some countries these groups are given high priority in the distribution of available foods.

*Home-Produced Food.*—Food raised for family consumption not only spares cash for other needs but improves the family diet as well. The kinds of foods that are home produced on many farms—milk, eggs, meats, vegetables and fruit—are good sources of the nutrients likely to be low in diets of many families. Even the city backyard garden is worth while; families who raise their own vegetables tend to eat more. At the same time they are taking advantage of freshly harvested products, thereby avoiding the nutrient losses often incurred in usual marketing procedures. For many families more extensive or better planned home production offers the most feasible way of improving diets.

*Education.*—The importance of education as a factor in raising nutritional levels cannot be overemphasized. Every one needs to know how to select an adequate diet. The lower the income the more difficult it becomes and the more important it is that the food dollar be spent to best advantage. However, many persons who can afford good diets do not know enough about food selection.

Knowledge of nutritional requirements and how they may be met by foods, while far from complete, has advanced far enough to offer sound guidance in our teaching. But the application of the knowledge we have has lagged behind its development. Nutrition education in a broad sense includes convincing people that what they eat makes a difference. Experience has shown that motivation is the most difficult hurdle to surmount in trying to change food habits. It is essential that the physician, nurse, nutritionist, teacher and other key persons in the community have a strong personal conviction of the importance of the right food for the growth and development of children and for optimal health and well-being at all ages. For this they also need scientific information about food values in relation to cost, in order to understand the practical aspects of feeding problems. While an able job in nutrition education is being done on many fronts, more widespread and more adequate education in all aspects of the nutrition problem is needed by every one from health officers and other physicians down to the food manager for the family and the individual consumer. Determining the ultimate success in the broad practice of nutrition and holding the key to the adequacy of American diets is the housewife who spends the family food money, who prepares the family's three meals a day and who guides the food habits of children in their formative years. The physician as one of the influential members of society must give his support to this aspect of training for homemaking.

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# Council on Pharmacy and Chemistry

## NEW AND NONOFFICIAL REMEDIES

*The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.*

Austin Smith, M.D., *Secretary.*

### ESTROGENIC SUBSTANCES (WATER INSOLUBLE) (See New and Nonofficial Remedies 1947, p. 343).

The following dosage forms have been accepted:

Cole Chemical Co., St. Louis 8

**Aqueous Suspension Estrogenic Substances:** 20,000 I. U. per cc., 10 cc. vials. Preserved with chlorobutanol 0.5 per cent.

**Solution Estrogenic Substances in Oil:** 2,000 and 5,000 I. U. per cc. in peanut oil, 1 cc. ampuls; 10,000 I. U. per cc. in peanut oil, 1 cc. ampuls and 10 cc. vials.

Reed & Carnrick, Jersey City, N. J.

**Aqueous Suspension Estrogenic Substances:** 20,000 I. U. per cc., 5 cc. and 10 cc. vials. Preserved with chlorobutanol 0.50 per cent.

Kremers-Urban Co., Milwaukee 12

**Aqueous Suspension Estrugenone with Benzyl Alcohol 2%:** 250,000 I. U. per cc., 5 cc. vials; 20,000 I. U. per cc., 1 cc. ampuls and 5 cc. vials.

U. S. Patent 377,549.

### PROTEIN HYDROLYSATE (See The Journal, March 6, 1948, p. 693).

The following additional dosage form has been accepted:

Interchemical Corporation, Biochemical Division, Union, N. J.

**Solution Elamine (modified casein hydrolysate) 10% with Dextrose 5%:** 600 cc. bottles. An acid hydrolysate of casein from which glutamic and aspartic acids have been partially removed and to which tryptophane has been added. It is virtually salt-free. No preservative is added.

U. S. Patent pending.

### FOLIC ACID (See The Journal, May 22, 1948, p. 367).

The following dosage form has been accepted:

Walker Vitamin Products, Inc., Mt. Vernon, N. Y.

**Tablets Folic Acid:** 5 mg. and 10 mg.

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SATURDAY, FEBRUARY 26, 1949

## DIAGNOSIS OF CANCER

A recent article in the *Scientific American* contains deprecatory remarks on the histologic diagnosis of tumors and other statements which are contrary to current medical opinion.[1] Supporting scientific data are not supplied. The lessening of confidence in the value of biopsy and microscopic study which may result from the article needs to be condemned. Microscopic examination for diagnosis of tumor is not infallible. The methods need to be constantly improved, and additional supplementary diagnostic methods should be sought. Nevertheless such examination is today still one of the most useful diagnostic procedures, and in many instances the most exact practical method of diagnosis.

The article under discussion deals with the heterotransplantation of tissue as a test for cancer. In performing this test small pieces of tissue are implanted into the anterior chamber of the eye of an alien species of animal—generally the guinea pig or rabbit. If the cells are cancerous they survive and grow; if they are normal, precancerous or from a benign tumor they fail to grow. In addition to cancerous tissue only normal embryonic tissue gives a positive reaction. The author advocates this biologic test—namely, successful heterologous transplantation—as a reliable test for cancer. He states, "A pathologist who examines tumor tissue under the microscope may observe significant details of form and structure, but he can never determine its malignancy from the appearance alone." This statement is contrary to the experience of physicians who know that cancer can usually be so recognized. Any pathologist who cannot diagnose tissue sections with a high degree of accuracy is unworthy of his specialty. His competence in this work is established by examination prior to certification by the American Board of Pathology. Greene does not offer evidence in support of his surprising statement, and a search of the literature does not reveal such data in his past publications.

The article further states, "Of two tumors with cells that look exactly alike, one may remain static or even disappear while the other inexorably spreads and kills the patient." If the author is here speaking of tumors which were diagnosed as benign by microscopic criteria, he is correct only with respect to the extremely rare examples of "benign metastasizing tumors"; he is wrong as far as the ordinary experience is concerned. If he is referring to tumors which are diagnosed as cancer on section, he is almost equally in error because spontaneous regression of such tumors is exceedingly rare. The well trained, experienced pathologist makes few mistakes in distinguishing tumors which will have a benign behavior from those which will run a malignant course, and such tumors rarely, if ever, "look exactly alike" to the experienced observer.

The article also attributes to the "biological view" a "fundamentally new concept of cancer," namely, that it ". . . is not the result of a sudden transformation, but is the final product of a developmental process." This concept is not new. It may be found in many old papers and books on tumors. A recent textbook[2] devotes much space to this idea. Many tumors may gradually or suddenly increase in degree of malignancy. Such tumors include, among others, mixed tumors of the salivary glands, neurofibroma, giant cell tumor of bone, laryngeal papilloma, pigmented nevus, bronchial adenoma and adenomatous polyp of the stomach and colon.

The statement is made that ". . . patients with disorders diagnosed as cancer by morphologist not infrequently make a complete recovery, whereas a diagnosis of cancer based on the behavior of the tissue is invariably followed, in spite of all attempts at treatment, by the death of the patient." Few, if any, patients on whom a diagnosis of cancer has been made by a competent pathologist make a complete recovery without treatment. Formerly, before such treatment was available, persons with tumors of similar morphology invariably died, as they still do today if they fail to have proper treatment. These results establish the cancerous nature of such tumors beyond question. Some forms of cancer which formerly had a mortality of about 100 per cent now show a high rate of cure (e. g., mammary cancer, carcinoma of the larynx, etc.). If the heterotransplantation technic is positive only in cases which are invariably fatal, then it is failing to detect many cancers. Perhaps the method is finding only the most highly malignant cases. The author concedes that there are different degrees of malignancy. To reject as malignant all tumors which fail to grow after heterotransplantation is unjustifiable on the basis of information now available.

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[1] Greene, H. S. N.: On the Development of Cancer, Scient. Am. **179**: 40, (Dec.) 1948.

[2] Willis, R. A.: Pathology of Tumors, St. Louis, C. V. Mosby Co., 1948.

An example of superiority of microscopic examination over heterologous transplants in diagnosing cancer is well illustrated by the first case cited by the author: A tumor on two occasions failed to grow after inoculation into guinea pig eyes and takes as proof of malignancy by this technic were obtained only on the third attempt (with the second tumor recurrence). The microscopic diagnosis of fibrosarcoma, in contrast, was already made on the first surgical specimen. This diagnosis was correct, as was subsequently shown by rapid recurrences of the tumor after surgical removal on two occasions and eventually by the development of metastases.

The transplantation technic is slow and expensive, and it fails to distinguish between nonneoplastic lesions and benign tumors—information which is often desirable from the specimen. The justification for risking the lessening of public confidence in the established diagnostic method of microscopic examination is questioned.[3]

## ARE MEDICAL CARE PRICES EXCESSIVE?

Elsewhere in this issue is a comparison of the final 1948 Consumers' Price Index with the preliminary index of medical care prices of the United States Bureau of Labor Statistics. The entire cost of living index was 171.2 for 1948; the Bureau of Medical Economic Research of the American Medical Association estimates that the index of medical care prices, a small part of this cost of living index, will be only 141 for 1948. The base period 1935-1939 equals 100. This spread of 30 points compares with a spread of 27.6 points in 1947—159.2 and 131.6.

Again it appears certain that the prices charged by the physicians, dentists and hospitals for rooms have not risen as fast as the cost of living. These figures were developed by an agency of the federal government. These data clearly show that the cost of living in 1948 was much higher than the level of prices which the American people were paying for the various medical care items sampled by the field representatives of the United States Bureau of Labor Statistics.

The index for hospital room rates will probably be 212 for 1948 as compared with 179.6 in 1947. This high index of 212 is included in the general medical care index of 141; if it were not included, the latter would be much below 141. Actually the hospital is a buying and selling institution. Since it buys goods and services and sells them soon after purchase in the form of services to patients, the hospital cannot escape contemporary inflation.

These estimates should set at rest a good many wild and irresponsible statements about the exorbitantly high prices being paid for medical care. The statements are simply untrue if we are to be guided by the well known cost of living index of the United States Department of Labor. Physicians generally may not realize that this cost of living index is widely used in the United States as a basic formula for wage adjustment.

## A SECRETARY OF HEALTH, EDUCATION AND WELFARE

Recently the Committee on Expenditures of the House of Representatives held hearings on the creation of a cabinet post for health, education and welfare. First to appear was Mr. Oscar Ewing, who spoke in favor of such a cabinet position. Newspapers generally report that Mr. Ewing is himself a candidate for this cabinet office. The American Medical Association was represented at the hearings by Dr. John W. Green of California. Dr. Green emphasized the record of the American Medical Association since 1884, urging the creation of a separate department of health under a cabinet officer. Repeatedly representatives of the American Medical Association have petitioned Congress and various presidents of the United States urging such consolidation of health activities. Dr. Green pointed out that an examination of the various proposals to group health activities of the federal government under one head indicates that this may be accomplished in a number of ways. The most commonly considered conceptions are:

1. A separate Department of Health whose head has cabinet status.
2. Combining all health activities of the federal government in a separate agency not of cabinet status.
3. Combining health activities with other activities of the federal government in one department.

He then indicated still further the reasons why the medical profession feels that there should be a single Department of Health rather than an agency with three divisions:

> The American Medical Association is strengthened in its position that there should be a single Department of Health by the reports recently submitted by the Hoover Commission. It is apparent that one of the nation's greatest interests is in the health of its citizens, and health is of such a nature that, to be most effective, it must be individualized. The Association has recently issued a program emphasing the importance of this point of view.
>
> There is some difference of opinion as to whether the Secretary should have the qualifications of a practicing physician or whether his duties could not be discharged as well if he were not a medical practitioner. We cannot accept the statement which has been made that a physician competent to manage such a department or bureau cannot be found. To us it seems that the first function of such a department should be to guarantee the public that it will have available adequate medical care. This involves decision and perspective in the medical and public health fields which only a trained practicing physician can possess. Good administration is vital, and the Secretary should have as his aide an Under Secretary who is a thoroughly trained administrator.

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[3] Foord, A. G., in discussion on Greene, H. S. N.: Identification of Malignant Tumors, J. A. M. A. **137**: 1364 (Aug. 14) 1948.

# Current Comment

## OUR GREATEST CHILD HEALTH PROBLEM

A statistical summary[1] of some of the important causes of death at school age, 1945-1946, gives the lie to recent irresponsible statements concerning the health conditions of our children. A recent release from what should certainly be considered an unimpeachable source (National Office of Vital Statistics) again clearly shows that the greatest problem is continuously and increasingly one of accident prevention. "In a total of 32,960 deaths from all causes in 1946 among persons 5 to 19 years old, 12, 342 or 37 per cent of all deaths were caused by accidents as compared to 35 per cent in 1945 and 34 per cent in 1941, the last prewar year." Deaths from accidents among children 5 to 9 years of age were three times as numerous as the combined number of deaths from poliomyelitis and pneumonia, the greatest nonaccidental killers and perhaps the most feared of childhood diseases. In the 10 to 14 age group accidents outranked diseases of the heart, the single greatest nonaccidental cause of death, 3,153 to 656, or nearly 5 to 1. Even among young persons 15 to 19 years of age, when tuberculosis is the greatest cause of fatality with heart disease and pneumonia next in line, accidents accounted for nearly twice as many deaths as the three together. In an analysis of mortality figures A. D. Battey, senior statistician for the National Safety Council, summarizes in an accompanying article as follows:

> Among school children 5 to 14 years old, preventive medicine has proved its effective power. In 1930, 19 out of 100,000 of these children died of pneumonia and influenza; in 1946, only 5 out of 100,000 died of these diseases. In 1930, 12 out of 100,000 died of tuberculosis; in 1946, fewer than 4. In 1930, 13 out of 100,000 died of appendicitis, and 12 of heart disease; in 1946, only 2 out of 100,000 died of appendicitis and 5 of heart disease.
>
> In 1930, 36 out of 100,000 children 5 to 14 years old died of accidents; in 1946, 29, an improvement of only 19 per cent. This relatively small decrease indicates the need for more effective work in the field of accident prevention.

Our present major problems in reduction of mortality for these age levels are: (*a*) improved programs of accident prevention; (*b*) bettered public health programs and facilities for the prevention, diagnosis and treatment of tuberculosis; (*c*) research into the causes and control of the greatest killers such as heart disease, cancer and poliomyelitis, and (*d*) education of the public to early use of available facilities for care of these conditions. Obviously these programs of safety, public health, research and education must be widely implemented before further progress can be achieved through medical care. Significantly enough, the medical profession, through its national state and local associations and societies, for years has been doing everything possible to effectuate these programs. Here are established needs, well defined areas in preventive medicine in which government—national, state, and local—has broad responsibilities and in which complete cooperation by the medical profession is assured.

## SALT SUBSTITUTES—A WARNING

The American Medical Association and the Food and Drug Administration have issued warnings concerning the use of preparations that have been sold as salt substitutes. These warnings were based on reports of several deaths which, it is claimed, followed the use of preparations containing lithium chloride. Certain therapeutic measures require the restriction of sodium chloride in the diet, which patients who prefer food flavored with salt do not relish. To provide flavoring, some manufacturers have made available salt substitutes, at least several brands of which contained lithium chloride, which now is known to possess harmful possibilities. The products containing lithium that have been available are reported to include food-sal,® salti salt® and west-sal.® The early symptoms of lithium poisoning are similar to the symptoms of heart and kidney diseases which require a salt-free diet, and include drowsiness, weakness, loss of appetite, nausea, tremors and blurring of vision. It has been suggested that patients who have been using lithium-containing preparations for prolonged periods may be given solution of sodium chloride if their medical problems will permit the temporary use of this substance, but there is doubt in some centers that sodium chloride affects lithium excretion. An intensive program by the Food and Drug Administration and the manufacturers is now under way to recall all lithium-containing salt substitutes from the market. Details concerning the deaths and other untoward effects that have been reported will appear in early issues of The Journal. In the meantime, the Council on Pharmacy and Chemistry also is initiating an investigation to gain additional facts. No lithium-containing salt substitute is advertised in the publications of the American Medical Association.

## THE DAN GILBERT LETTER

Not long ago the National Physicians Committee circulated to the medical profession a letter by one Dan Gilbert, who was early in his career at the age of 26 years associated briefly in Washington with the notorious Gerald Winrod. Later Gilbert resigned from any connection with Winrod, and, when John Rogge was associated with the Department of Justice in Washington, Gilbert was chief witness against Winrod in a case brought by the government. The circulation of the letter by Gilbert to Protestant ministers and to the medical profession has been bitterly condemned by many hundreds of physicians who have written to the office of the American Medical Association in Chicago and who have in some places held protest meetings on the subject. The Journal of the American Medical Association authorizes the statement that the Gilbert letter was sent without the knowledge of any official of the American Medical Association, that every official of the American Medical Association joins in condemning the letter as an expression of medical opinion in this country and that the American Medical Association does not require allies of doubtful repute in its campaign for the maintenance of a high quality of medical care and for freedom in medicine in our country.

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[1] Battey, A. D.: Let's Look at the Record, Safety Educ. 28:7 (Dec.) 1948.

# ORGANIZATION SECTION

## THE PHYSICIAN'S FEDERAL INCOME TAX

Prepared by the Bureau of Legal Medicine and Legislation, American Medical Association

Federal income taxpayers on a calendar year basis must on or before March 15 do two things: (1) They must file their final returns for the year 1948 and (2) they must file a declaration of estimated tax for 1949.

### REVENUE ACT OF 1948

This act effected numerous changes in existing law that will in many instances result in a saving to taxpayers. One of the most important changes relates to the splitting of income, for tax purposes, between husband and wife and the filing of joint returns. If either the husband or wife has a surtax income in excess of $2,000, and if a joint return is filed, the family will realize a saving, since the splitting of the income will make applicable lower surtax rates.

A new exemption in the amount of $600 was created for taxpayers 65 years old or over. The ordinary personal exemption was increased from $500 to $600, as was also the exemption for the blind. A physician and his wife, both 65 years or older, who file a joint return may therefore claim four exemptions of $600 each and additional exemptions of like amount for dependents and in case either spouse is blind. The income tax returns have been much simplified during recent years and contain most of the basic information that a physician needs who prepares his own return or has it prepared by an office assistant, to complete the return. Additionally the Treasury Department last fall released a sixteen page booklet of instructions to aid taxpayers in completing Form 1040A, Short Form 1040 and Long Form 1040, one of which most physicians will find suitable to their needs. A copy of this booklet was forwarded to each prior taxpayer. Persons who will make returns or file estimates for the first time this year can undoubtedly obtain a copy of the booklet from the local office of the Collector of Internal Revenue.

Since this basic information has thus been made generally and readily available, it would serve no helpful purpose to repeat it here. The concluding portion of this statement, therefore, will discuss aspects of the law and its requirements that are of particular concern to physicians.

### GROSS INCOME

*Gross Income.*—A physician's gross income is the total amount of money received by him during the year for professional services, regardless of the time when the services were rendered for which the money was paid, assuming that the return is on a cash receipts and disbursements basis, plus such money as he has received from investments and from other sources.

If a physician receives a salary as compensation for services rendered and in addition thereto living quarters or meals, the value to the physician of the quarters and meals so furnished ordinarily constitutes income subject to tax. If, however, living quarters or meals are furnished for the convenience of the employer, the value thereof need not be computed and added to the compensation otherwise received by the physician. As a general rule, the test of "convenience of the employer" is satisfied if living quarters or meals are furnished to a physician who is required to accept such quarters and meals in order to perform properly his duties. For example, if a physician employed by a hospital is subject to immediate service at any time during the twenty-four hours of the day and therefore cannot obtain quarters or meals elsewhere without material interference with his duties and on that account is required by the hospital to accept the quarters or meals furnished by it, the value thereof need not be included in the gross income of the physician.

Tuition payments and subsistence allowances for veterans made under the G. I. Bill of Rights are not taxable income. Mustering out payments are likewise nontaxable.

### DEDUCTIONS FOR PROFESSIONAL EXPENSES

A physician is entitled to deduct all current expenses necessary in carrying on his practice. The taxpayer should make no claim for the deduction of expenses unless he is prepared to prove the expenditure by competent evidence. As far as practicable, accurate itemized records should be kept of expenses and substantiating evidence should be carefully preserved. The following statement shows what such deductible expenses are and how they are to be computed:

*Office Rent.*—Office rent is deductible. If a physician rents an office for professional purposes alone, the entire rent may be deducted. If he rents a building or apartment for use as a residence as well as for office purposes, he may deduct a part of the rental fairly proportionate to the amount of space used for professional purposes. If the physician occasionally sees a patient in such dwelling house or apartment, he may not, however, deduct any part of the rent of such house or apartment as professional expense; to entitle him to such a deduction he must have an office there, with regular office hours. If a physician owns the building in which his office is located, he cannot charge himself with "rent" and deduct the amount so charged.

*Office Maintenance.*—Expenditures for office maintenance, as for heating, lighting, telephone service and the services of attendants, are deductible.

*Supplies.*—Payments for supplies for professional use are deductible. Supplies may be fairly described as articles consumed in the using; for instance, dressings, clinical thermometers, drugs and chemicals. Professional journals may be classified as supplies and the subscription price deducted. Amounts currently expended for books, furniture and professional instruments and equipment, "the useful life of which is short," generally less than one year, may be deducted, but if such articles have a more or less permanent value, their purchase price is a capital expenditure and is not deductible.

*Equipment.*—Equipment comprises property of a more or less permanent nature. It may ultimately wear out, deteriorate or become obsolete, but it is not in the ordinary sense of the word "consumed in the using."

The cost of equipment such as has been described, for professional use, cannot be deducted as expense in the year acquired. Examples of this class of property are automobiles, office furniture, medical, surgical and laboratory equipment of more or less permanent nature, and instruments and appliances constituting a part of the physician's professional outfit, to be used over a considerable period of time, generally over one year. Books of more or less permanent nature are regarded as equipment, and the purchase price is therefore not deductible.

Although the cost of such equipment is not deductible in the year acquired, nevertheless it may be recovered through depreciation deductions taken year by year over its useful life, as described later.

No hard and fast rule can be laid down as to what part of the cost of equipment is deductible each year as depreciation. The amount depends to some extent on the nature of the property and on the extent and character of its use. The length of its useful life should be the primary consideration. The most that can be done is to suggest certain average or normal rates of depreciation for each of several classes of articles and to leave to the taxpayer the modification of the suggested rates as the circumstances of his particular case may dictate. As fair, normal or average rates of depreciation, the following have been suggested: automobiles, 25 per cent a year; ordinary medical libraries, x-ray equipment, physical therapy equipment, electrical sterilizers, surgical instruments and diagnostic apparatus, 10 per cent a year; office furniture, 5 per cent a year.

The principle governing the determination of all rates of depreciation is that the total amount claimed by the taxpayer as depreciation during the life of the article, plus the salvage value of the article at the end of its useful life, shall not be greater than its purchase price. The physician must in good faith use his best judgment and claim only such allowance for depreciation as the facts justify. The estimate of useful life, on which the rate of depreciation is based, should be carefully considered in each individual case.

*Dues.*—Dues paid to societies of a strictly professional nature are deductible. Dues paid to social organizations, even though their membership is limited to physicians, are generally held to constitute personal expenses and as such are not deductible. If, however, membership in social organizations, such as a country club, is maintained both for personal and professional or business purposes and if evidence can be produced to substantiate the claim that a part of the expenses of such membership was incurred for business purposes, then it would seem that these latter expenses would be deductible. Further discussion of this particular aspect of the federal law will be found in a subsequent paragraph dealing with the deductibility of entertainment expenses.

*Postgraduate Study.*—The Commissioner of Internal Revenue holds that the expense of postgraduate study is not deductible.

*Traveling Expenses.*—Traveling expenses, including amounts paid for transportation, meals and lodging, necessarily incurred in professional visits to patients and in attending medical meetings for a professional purpose, are deductible.

*Entertainment Expenses.*—The deductibility of entertainment expenses, when incurred for business purposes, has been upheld, as applied to an actor, in the case of *Blakmer v. Commissioner,* 70 F. (2d) 255. In the case of *Jacobson,* 6 T.C. 1048, the taxpayer was allowed a deduction of expenses incurred for entertaining clients and employees of his law firm. The deductibility for such expenses by an attorney came before the U. S. Tax Court in the cases of *Clyde A. Armstrong* and *Ethlyn L. Armstrong v. Commissioner* and *Clyde A. Armstrong v. Commissioner,* which were decided on Aug. 29, 1947. In a memorandum opinion rendered by Judge Opper, this was said:

> Taxpayer, a Pittsburgh attorney, became a member of the University Club and the Duquesne Club in order to have available facilities for the entertainment of his clients; his purpose in joining the clubs was not particularly to make contacts productive of new business. In 1942, 1943 and 1944 the Commissioner disallowed deductions representing club dues, but allowed 50 per cent of the house bills incurred by taxpayer at each of the clubs during those years. The court finds that taxpayer used the club facilities not less than 50 per cent of the time for entertaining clients and other purposes incident to the practice of his profession, and allows the deduction of dues to that extent.

In the December 1948 issue of the *Medical Annals of the District of Columbia,* page 697, there was published correspondence that had passed between the Secretary of the Medical Society of the District of Columbia and the Internal Revenue Agent in the Baltimore Division, Treasury Department, in which the latter stated that if entertainment expenses incurred by a physician have a direct relation to the production of income, and can be supported by the taxpayer, they will be taken into consideration in determining his net taxable income.

*Automobiles.*—Payment for an automobile is a payment for permanent equipment and is not deductible. The cost of operation and repair, and loss through depreciation, are deductible. The cost of operation and repair includes the cost of gasoline, oil, tires, insurance, repairs, garage rental (when the garage is not owned by the physician), chauffeur's wages and the like.

Deductible loss through depreciation of an automobile is the actual diminution in value resulting from obsolescence and use and from accidental injury against which the physician is not insured. If depreciation is computed on the basis of the average loss during a series of years, the series must extend over the entire estimated life of the car, not merely over the period in which the car is possessed by the present taxpayer.

If an automobile is used for professional and also for personal purposes—as when used by the physician partly for recreation, or so used by his family—only so much of the expense as arises out of the use for professional purposes may be deducted. A physician doing an exclusive office practice and using his car merely to go to and from his office cannot deduct depreciation or operating expenses; he is regarded as using his car for his personal convenience and not as a means of gaining a livelihood. What has been said in respect to automobiles applies with equal force to horses and vehicles and the equipment incident to their use.

## MISCELLANEOUS

*Contributions to Charitable Organizations.*—For detailed information with respect to the deductibility of charitable contributions generally, physicians should consult the official return blank or obtain information from the collectors of internal revenue or from other reliable sources. An individual taxpayer can deduct such contributions only to the extent that they do not exceed 15 per cent of his adjusted gross income. The physician may not deduct as a charitable contribution the value of services rendered an organization operated for charitable purposes.

*Bad Debts.*—Physicians who make their returns on a cash receipts and disbursements basis, as most physicians do, cannot claim deductions for bad debts.

*Taxes.*—Taxes generally, either federal or state, are deductible by the person on whom they are imposed by law. Both real and personal property taxes are deductible; but so-called taxes, more properly assessments, paid for local benefits, such as street, sidewalk and other like improvements, imposed because of and measured by some benefit inuring directly to the property against which the assessment is levied, do not constitute an allowable deduction from gross income. Physicians may deduct state gasoline taxes and state sales taxes. In some states sales taxes are imposed on the seller, but if they are passed on to the buyer the latter may deduct them.

State income and use taxes are deductible; federal income taxes are not. Federal import, excise or stamp taxes are deductible only to the extent that they are attributable to business activities. State automobile license fees are deductible. If a state or local fee is imposed for regulatory purposes, and not to raise revenue, the fee may not ordinarly be deducted as a tax. If such fees, however, are classifiable as a business expense they are deductible as such. Annual registration fees imposed on physicians probably come within the category of regulatory fees and should be deducted as a business expense rather than as taxes. Local and state occupational taxes imposed on physicians are deductible either as taxes or as a business expense, depending on the purpose for which the tax is imposed.

The excise taxes imposed on employers by section 804, title VIII, and section 901, title IX, of the Social Security Act, commonly referred to as old age and unemployment benefit taxes, are deductible annually by employers in computing net income for federal income tax purposes. If the taxpayer's return is made on a cash basis, as are the returns of practically all physicians, the taxes are deductible for the year in which they are actually paid. If the return is made on an accrual basis, the taxes are deductible for the year in which they accrue, irrespective of when they are actually paid. Employees, including physicians whose employment brings them within that category, may not deduct the tax imposed on them by section 801, title VIII, of the Social Security Act, generally referred to as the old age benefits tax. If, however, the employer assumes payment of the employee's tax and does not withhold the amount of the tax from the employee's wages, the amount of the tax so assumed may be deducted by the employer, not as a tax paid but as an ordinary business expense.

*Medical Expense.*—A taxpayer may deduct amounts expended for medical, dental and hospital expense for himself, his spouse or a dependent, not compensated for by insurance or otherwise, including amounts paid for health and accident insurance, according to a prescribed formula. The law limits the deduction to a maximum of (*a*) $1,250 if the taxpayer claims only one exemption; (*b*) $2,500 if the taxpayer is a single person or if married and filing a separate return and claims more than one exemption; (*c*) $2,500 if the taxpayers are married and file a joint return and claim two exemptions, $3,750 if three exemptions are claimed and $5,000 if four or more exemptions are claimed.

*Laboratory Expenses.*—The deductibility of the expenses of establishing and maintaining laboratories is determined by the same principles that determine the deductibility of corresponding professional expenses. Laboratory rental and the expenses of laboratory equipment and supplies and of laboratory assistants are deductible when under corresponding circumstances they would be deductible if they related to a physician's office.

*Losses by Fire or Other Causes.*—Loss of and damage to a physician's equipment by fire, theft or other cause, not compensated by insurance or otherwise recoverable, may be computed as a business expense and is deductible, provided evidence of such loss or damage can be produced. Such loss or damage is deductible, however, only to the extent to which it has not been made good by repair and the cost of repair claimed as a deduction.

*Insurance Premiums.*—Premiums paid for insurance against professional losses are deductible. This includes insurance against damages for alleged malpractice, against liability for injuries by a physician's automobile while in use for professional purposes, and against loss from theft of professional equipment and damage to or loss of professional equipment by fire or otherwise. Under professional equipment is to be included any automobile belonging to the physician and used for strictly professional purposes.

*Expense in Defending Malpractice Suits.*—Expense incurred in the defense of a suit for malpractice is deductible as a business expense.

*Sale of Spectacles.*—Oculists who furnish spectacles, etc., may charge as income money received from such sales and deduct as an expense the cost of the article sold.

# Medical Economics

## MEDICAL CARE PRICES vs. COST OF LIVING

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The final report of the United States Bureau of Labor Statistics places their Consumers' Price Index for 1948 at 171.2. The Bureau of Medical Economic Research has estimated that the index of medical care items, a small part of the total index, will stand at 141 for 1948. The base period 1935-1939 equals 100. If our preliminary estimates are later confirmed by the Bureau of Labor Statistics, 1948 will be another year in which the cost of living has been higher than the level of prices paid for medical care items. The final and official index of medical care items for 1948 will probably be 141 plus or minus 1.

The estimates for medical care items, a component part of the total index of prices paid by moderate income families in thirty-four large cities, are the means of the four quarterly indexes published by the United States Department of Labor. The cost of living index is used widely in the United States for the adjustment of wages although it is developed by a sampling process and covers only moderate income families in thirty-four large cities. In the accompanying table the final cost of living index and our estimates of the medical care indexes for 1948 are presented along with the final figures for 1947. No decimals are shown for our 1948 estimates, as these figures are preliminary. In 1947 the Consumers' Price Index was 159.2 and the medical care portion thereof was 131.6, a spread of 27.6. Apparently the spread in 1948 kept pace with the 1947 difference.

There are fifteen medical care items which are grouped into eight categories. Our estimate of the 1948 index for medical care excluding drugs is 145 or 4 points above the index of 141 for medical care including drugs. For drugs alone our estimate for 1948 is 122. In the five indexes under medical care excluding drugs, physicians' services (general practitioners only) is estimated at 136 for 1948. (Office visit at 138, house visit at 129 and obstetrical case at 154.) The 1948 index for surgeons and specialists combined is 136 (appendectomy at 133 and tonsillectomy at 139) and for dental care combined 146. The 1948 index for optical services combined is estimated at 124.

The most significant change is in the fifth category, hospital rates combined, which soared from 179.6 in 1947 to 212 in 1948. The index of 212 for hospitals is included in the index of 141 for all medical care and drugs combined; if it had not been included the latter would have been considerably below 141. Prices for laboratory and other services rendered by hospitals are not sampled; hence the hospital index covers primarily room rates. The hospital is uniquely exposed to the forces of inflation. It is a buying and selling institution with large current costs and few fixed charges. It buys goods and services and sells services soon after purchase. Its costs are not stabilized by such customary accounting items as depreciation and taxes because most hospitals are public institutions. Hence the changes in the current prices of food and fuel and in hourly wage rates are potent in changing hospital room rates charged to patients because there are no other costs of importance. The sharp increase in the index of hospital room rates for 1948 over 1947 reflects to some extent the failure of hospitals to raise their rates earlier. The recent decline in the prices of farm products has not yet materially reduced the operating costs of hospitals.

*Indexes of Component Medical Care Prices and the Consumers' Price Index, 1947, 1948*
*1935-1939 = 100 **

| | 1947 | 1948 |
|---|---|---|
| **Consumers' price index (cost of living)....** | **159.2** | **171.2**<br>**(preliminary)** |
| **Medical care and drugs, combined.........** | **131.6** | **141** |
| A. Medical care, excluding drugs.......... | 135.3 | 145 |
| 1. Physicians' services, combined (general practitioners only)............ | 130.3 | 136 |
| a. Office visit........................... | 131.5 | 138 |
| b. House visit.......................... | 125.3 | 129 |
| c. Obstetrical case.................... | 143.7 | 154 |
| 2. Surgeons and specialists, combined.. | 129.4 | 136 |
| a. Appendectomy, adult, surgeon.... | 128.2 | 133 |
| b. Tonsillectomy, child, hospital, specialist ........................ | 130.7 | 139 |
| 3. Dental care, combined................ | 137.4 | 146 |
| 4. Eyeglasses, complete................. | 118.6 | 124 |
| 5. Hospital rates, combined............ | 179.6 | 212 |
| B. Prescriptions and drugs, combined..... | 115.4 | 122 |
| 1. Prescriptions, combined.............. | 123.7 | 134 |
| Physicians, combined (general practitioner, surgeon, specialist)....................... | 130.2 | 136 |

* The Consumers' Price Index for 1948 was obtained by letter from the United States Bureau of Labor Statistics; presumably this figure will be published in the February 1949 issue of the Monthly Labor Review of the United States Department of Labor. The indexes for medical care prices appeared in the following mimeographed publications of the United States Bureau of Labor Statistics: Indexes of Retail Prices of Services and Miscellaneous Goods, United States Bureau of Labor Statistics, LS 48-1093, March 1935 to June 1947, pp. 6-3, 7-3 and 8-2; Indexes of Retail Prices of Apparel, Housefurnishings, and Services and Miscellaneous Goods to Moderate Income Families in Large Cities of the United States, United States Bureau of Labor Statistics, LS 49-62, Supplement II issued August 1948, p. 3, and LS 49-1783, Supplement III issued November 1948, p. 4.

The accompanying table should be considered an extension of table 7 on page 14 of Bulletin 66, "The Cost and Quantity of Medical Care in the United States." A copy of this bulletin will be sent on written request to the Bureau of Medical Economic Research, American Medical Association, 535 North Dearborn Street, Chicago 10.

The Bureau of Medical Economic Research would like again to commend the physicians in the thirty-four large cities and their county medical societies for the time taken to provide field representatives of the United States Department of Labor with the requested information on fee schedules, the dentists who have provided their information, the hospitals and the oculists and the druggists. One cannot stress too strongly the value of this cooperation to the Bureau of Medical Economic Research. It needs this information for many research projects and hopes that physicians will continue to cooperate with the field representatives and statisticians of the United States Department of Labor.

# Official Notes

## ALUMNI AND FRATERNITY REGISTRATION AT A. M. A. CONVENTION

All medical school alumni organizations and medical fraternities which desire space at the Atlantic City Session of the American Medical Association for registration are requested to communicate with Dr. Walton Van Winkle Jr., American Medical Association, 535 North Dearborn Street, Chicago 10, Illinois, and provide the following information: (1) name of organization; (2) name of person or persons who will be in charge of registration, and (3) if tickets are to be sold, (*a*) date and time of function, (*b*) location and (*c*) price.

The following regulations have been established regarding registration of alumni organizations and medical fraternities: 1. Only those organizations which have made application as outlined will be provided registration space. Space will be assigned on the basis of the order in which applications are received. 2. No sign, placard or other display larger than 24 inches by 24 inches will be permitted. 3. An organization must supply its own cash boxes, tickets, placards and one or more persons to handle ticket sales and registration. 4. Organizations will be permitted to register jointly but such arrangements must be made by agreement between the affected organizations and notice of such arrangements is to be sent to Dr. Van Winkle at American Medical Association headquarters. 5. The American Medical Association can assume no responsibility for tickets sold or money collected by alumni or fraternity organizations at the convention.

## RESOLUTION OF MILK PRODUCERS FEDERATION ON RURAL HEALTH

The National Cooperative Milk Producers Federation at their recent annual meeting in Portland, Ore., asked the following resolutions concerning the rural health program of the American Medical Association:

"General health and welfare of rural people can be well served by a constructive program of education and service such as that now being conducted by the American Medical Association through its *committee on rural medical service*. This program is making real progress. Through it the federation and other farm groups have been able to take part in offering counsel and advice toward extending an ever improving health program to more rural people."

# Medical Legislation

## STATE LEGISLATION

### California

**Bills Introduced.**—A. Constitutional Amendment 61 proposes the creation of a California **State Board of General Practitioners Examiners**, a certificate from which would authorize the holder to use drugs or what are known as medical preparations in or upon human beings and to sever tissue in the practice of minor surgery and to use any and all other methods in the treatment of diseases, injuries, deformities, or other physical or mental conditions, except major surgery. Major surgery is defined as the penetration by severing of the tissues of the body, the cranial, thoracic and abdominal cavities of the body and the severing from the body of any appendages. A. 955 proposes the creation within the department of professional and vocational standards of a board of registration for scientific medical research funds to register and to prescribe rules of conduct for persons desiring to engage in **the collection of funds for scientific medical research**. The Red Cross and the Community Chest would be exempt from the provisions of this proposal. A. 1010, to amend the Business and Professions Code, proposes that **any person** who is **licensed to practice medicine** and surgery in any other state, who is a graduate of a medical school approved by the Board of Medical Examiners, and who has applied for a physician's and surgeon's certificate in California, may be appointed to a medical staff of the Department of Corrections and may treat persons under the jurisdiction of that department for one year. At the end of that year, the applicant must have secured a physician's and surgeon's certificate in order to continue as a member of the staff. Until such person has secured his physician's and surgeon's certificate he shall not engage in the practice of medicine in the state except as provided in this proposal. A. 1072 proposes the enactment of **an alcoholics rehabilitation law** under the direction of the department of mental hygiene assisted by an advisory board, two members of which shall be physicians designated by the California Medical Association. A. 1074, to amend the law relating to **premarital tests**, proposes that the word "physician" as used in the premarital examination law shall include chiropractors. A. 1213 proposes the creation of a **Board of Physiotherapy Examiners** and defines physiotherapy as the performing for compensation of any professional service requiring special education, knowledge or skill by persons who undertake or represent themselves as able to treat or to alleviate ailment, deformity, fatigue, disease, injury, pain or any other physical condition by various modalities; electricity, electronics (except x-ray, radium), light, heat, water, corrective exercise and therapeutic massage. Nothing in this proposal would be construed to provide that the person representing himself as a physiotherapist is allowed to diagnose or to prescribe internal treatment. A. 1215, to amend the Business and Professions Code, proposes that all **prescriptions given to patients to be filled** by a pharmacist shall be in writing and shall be in legible, readily understandable, English. A. 1218, to amend the Business and Professions Code, proposes that **any person who practices** or attempts to practice any system or mode of treating the sick or afflicted or to alleviate ailments, deformity, fatigue, human disease, injury, obesity, pain or any other physical or mental condition by the use of massage, therapeutic massage, exercise or therapeutic exercise or by the use of the physical, chemical and other properties of electricity, heat, light or water, except by prescription or direction of a licensed practitioner, without having a license to practice medicine, osteopathy or chiropractic, shall be deemed guilty of a misdemeanor. A. 1219, to amend the Business and Professions Code, proposes that any person violating any of the provisions of the Business and Professions Code should be prosecuted by **the particular board which issued him his license.** A. 1270 proposes that **no blind person shall be denied** admission to any examination for a chiropractic license on the ground that he is blind. A. 1301, to amend the Business and Professions Code, proposes the creation of a State **Board of Examiners of Psychologists** and proposes that a person will be deemed to be practicing psychology who renders to individual clients or to the general public, for fees or personal profit, any professional service requiring the application of recognized principles, methods and procedures of the science and profession of psychology (such as the technics of psychometrics, psychotherapy, any form of individual analysis, and hypnosis and its applications) for the purpose of psychologic diagnosis, classification, evaluation, reeducation, guidance or personal adjustment. A. 1199, to amend the health and safety code, proposes the creation of an **Advisory Chronic Disease Council** to conduct a program directed toward the reduction of deaths and disability from cancer and other chronic diseases. A. 1501, to amend the Business and Professions Code, proposes to exempt from the provisions of the medical practice act the procurement of **blood specimens by venipuncture or skin puncture** for test purposes by a duly licensed laboratory technician or technologist on specific written authorization from a duly licensed physician and surgeon. A. 1602, to amend the civil code, proposes the creation **of a lien in favor of hospitals** on all causes of action for damages accruing to an injured person therein for the reasonable charges for hospital care, treatment and maintenance necessitated by the injuries giving rise to such causes of action. S. 431, to amend the Health and Safety Code, proposes the enactment of provisions relating to the regulation of the humane use of animals for diagnosis and treatment of human and animal diseases, for research in the advancement of veterinary, dental, medical and biologic sciences, animal and human nutrition, improvement and standardization of laboratory procedures and to provide for the issuance, suspension and revocation of licenses relating to **the use of animals for medical research** by the State Department of Public Health. S. 581 proposes to authorize the State Department of Public Health to assist in the development of community blood banks for the collection and distribution of **human whole blood and blood plasma.** S. 608, to amend the Business and Professions Code, proposes that any person licensed to practice medicine and surgery in any other state and who is a graduate of a medical school approved by the Board of Medical Examiners of California may be appointed to the medical staff of any state mental hospital or state home for the mentally deficient but **must not engage in the practice of medicine in the state except** so far as the inmates of the institution are concerned until he has secured a physician's and surgeon's certificate.

**Bill Enacted.**—S. 72 was approved Feb. 3, 1949. It permits the **Board of Osteopathic Examiners** to issue physician's and surgeon's certificates under certain circumstances.

### Georgia

**Bill Introduced.**—H. 600 proposes the creation of a Georgia **board of naturopathic examiners** and defines naturopathy as a health science to aid in the prevention, diagnosis and cure of human ailments, diseases and injuries. The proposal further states that the practice of naturopathy shall be construed to include the application, by means of any one or more of the psychologic, physical, mechanical, chemical or material forces or agencies of nature, and all according to the fundamental principles of anatomy, the sciences of psychology, mechanotherapy, articular manipulation, corrective and orthopedic gymnastics, neurotherapy, psychotherapy, hydrotherapy, suggestotherapy, electrotherapy, thermotherapy, phototherapy, chromotherapy, vibrotherapy, thalmotherapy, phytotherapy, biochemistry, external appliances, hygiene, first aid, sanitation, heliotherapy, mineral baths and dietetics, which dietetics shall include the use of vitamins and of foods of such biochemical tissue building products and cell salts as are found in the normal body, the use of vegetal oils and dehydrated and pulverized fruits, flowers, seeds, barks, herbs, roots and vegetables.

### Idaho

**Bill Introduced.**—H. 220 proposes the creation of a **board of naturopathy** and defines naturopathy as a system of manipulative, mechanical, mental and natural methods of treating the human body for the purpose of maintaining it in, or of restoring it to, a state of normal health. It includes the prescription and application or use of air, electricity, heat, light and water, and of earth and natural elements and fruits thereof.

## Kansas

**Bill Introduced.**—H. 115 proposes, among other things, that **an autopsy may** be performed upon the body of a deceased person by a physician or surgeon, when so authorized in writing by the decedent during his lifetime or by the decedent's surviving husband or wife, an adult child, a parent, or a brother or sister, and any physician or surgeon performing an autopsy so authorized shall not be liable on account thereof.

## Michigan

**Bill Introduced.**—S. 91 proposes that under certain circumstances **all children shall be immunized** against diphtheria, whooping cough, tetanus and smallpox before they register in any kindergarten or elementary school within the state unless they can show satisfactory evidence that they have been properly immunized and are adequately protected against said diseases.

## Montana

**Bill Introduced.**—H. 285 proposes to authorize autopsies or **postmortem examinations** on dead bodies in cases where dissection, autopsy or postmortem examination is directed or authorized by the last will and testament of the deceased and in cases where the husband, wife or next of kin charged by law with the duty of burial shall in writing authorize dissection, autopsy or postmortem examination for the purpose of ascertaining the cause of death. All dissections, autopsies or postmortem examinations involving dissection of any part of the human body shall be performed by a physician or surgeon duly licensed to practice such profession by the state board of medical examiners and on completion of any such dissection, autopsy or postmortem examination the physician or surgeon shall deliver a written report thereof together with his findings as to cause of death to the next of kin of the decedent or the representative of the decedent's estate or to other persons lawfully requesting such procedures.

## New Jersey

**Bill Introduced.**—A. 267, to amend the disability benefits law, proposes to permit a beneficiary under the act to receive care by a legally licensed **chiropodist** who, when requested by the commission, shall certify within the scope of his practice the disability of the claimant, the probable duration thereof and the medical facts within his knowledge.

## New York

**Bills Introduced.**—A. 786, to amend the vehicle and traffic law, proposes that applicants for a **chauffeur's license** shall present a certificate from a duly licensed physician attesting that such applicant has been examined and found physically competent to operate an omnibus. A. 1073 and S. 943, **to amend the public health law,** propose that no civil action shall be brought against a physician, officer or employee of the department of health in his personal capacity for alleged damages because of the manner in which professional services were performed, any act done or failure to perform any act while discharging his official duties, without leave of a judge of a supreme court first had and obtained. Such physician shall not be liable for damages in any action if he shall have acted in good faith with reasonable care and on probable cause. A. 1098 and S. 929 propose, among other things, to eliminate from the existing law relating to the **practice of physiotherapy** the requirement that licentiates may only administer drugs or practice medicine under the supervision of a duly licensed physician. A. 1097, to amend the workmen's compensation law, proposes to authorize employees to receive **treatment by podiatrist** licensed in the state. A. 1442, **to amend the insurance law** relating to nonprofit medical and dental indemnity and hospital service corporations, proposes that such corporations shall be open to participation of all duly licensed physicians and all duly licensed dentists without discrimination against the schools of medical and dental practice. S. 630 proposes to require every physician to report immediately to the health officer **every case of infantile paralysis** under his care. S. 911, relating to the refilling of **prescriptions for somnifacient drugs,** proposes that no prescription for a barbiturate or other hypnotic or somnifacient drug shall be refilled unless the prescription includes a statement by the prescriber that it may be refilled and specifying the minimum interval between fillings and the total number of refillings prescribed.

## Oklahoma

**Bills Introduced.**—H. 178 proposes regulations for the incorporation and licensing of charitable and benevolent nonprofit hospital service and idenmnity corporations and **nonprofit medical service and indemnity corporations.** H. 180 proposes to authorize physicians, chiropractors and osteopaths who were licensed to practice in the state of Oklahoma at the time the basic science act was passed in 1937, either on the basis of examination or reciprocity, and who are also licensed at the time this proposal is enacted to receive a certificate of ability from **the basic science board** without further examination. H. 182 proposes to authorize the various professional examining boards to make use **of the injunctive process** to restrain violations of the respective acts.

## Pennsylvania

**Bills Introduced.**—H. 190 proposes that **no state hospital** under the direction of the department of welfare having in attendance one or more physicians or interns shall increase its staff of physicians or interns unless authorized to do so by the Department of Welfare and no such permission will be granted as long as there is in the state any such hospital having one hundred beds or more but not having at least one licensed physician or intern. H. 220 proposes to authorize the department of health to investigate the **subject of alcoholism** in respect to rehabilitation and compile and maintain reliable statistics indicating the effectiveness of any rehabilitation programs carried forward by state-aided clinics for alcoholics, state hospitals and state-aided hospitals receiving alcoholics. H. 313 proposes the creation of a state **board of chiropractic examiners** and defines chiropractic as a philosophy, science and art of things natural, a system of locating misaligned or displaced vertebrae of the human spine, the procedure preparatory to and the adjustment by hand of such misaligned or displaced vertebrae and other articulations and tissues of the human body together with the use of scientific instruments of analysis. S. 223 proposes the establishment and erection within the limits of the city of Philadelphia of an institution to be known as the **Pennsylvania State Medical School.**

## Texas

**Bills Introduced.**—H. 69 proposes the creation of a **state board of naturopathic examiners** and defines naturopathy as that philosophy and system of the healing art embracing prevention, diagnosis and the cure and treatment of human ills, diseases, traumas, deformities, and functions by the use of the several properties of air, light, heat, cold, water, mechanics, electricity, manipulation and psychology, together with the use of such substances, largely nutritional, of plant, animal or mineral origin as are naturally found in and required by the body, excluding drugs and major surgery. Nothing in the proposal should be construed as authority to authorize a naturopathic physician to practice materia medica, major surgery or any other practice licensed by law. H. 95 proposes to provide for the competent training in health education of all prospective teachers and school administrators. S. 126 proposes the creation of a **Southwestern Medical College** of the University of Texas to be established in the city of Dallas. S. 149 proposes amendments to the food and drug act, among which would be the provision that **drugs sold at retail** and containing any quantity of amidopyrine, barbituric acid, pituitary, thyroid or their derivatives must conform with the labeling requirements of the act unless they are sold on a written prescription signed by a member of the medical, dental or veterinary profession who is licensed by law to administer such drug and the label bears the name and place of business of the seller, the serial number and date of the prescription and the name of such member of the medical, dental or veterinary profession. S. 171 proposes the creation of a Texas **board of chiropractic examiners** and defines chiropractic as the practicing or employing of objective or subjective means without the use of drugs or surgery for the purpose of ascertaining the alignment of the vertebrae of the human spine and the practice of adjusting the vertebrae by hand to correct any subluxation or misalignment thereof.

## Utah

**Bills Introduced.**—S. 169, to amend the marriage law, proposes that **applicants for a marriage license** shall file a certificate from any licensed practitioner of the healing arts which certificate shall state the age of the applicant, that the applicant has been given an examination for syphilis and that in the opinion of the physician the applicant is not *infected with syphilis or other venereal disease* in a communicable stage. S. 179 proposes to make permanent a board created to investigate *the* ***causes of alcoholism*** and to provide education thereon and treatment of alcoholics.

## Washington

**Bills Introduced.**—H. 13, **to amend the chiropractic act,** proposes, among other things, that any person who has complied with the provisions of the act may adjust by hand any articulation of the spine but shall not prescribe for or administer to any person any medicine or drugs now or hereafter included in materia medica nor practice obstetrics nor practice osteopathy or surgery. H. 77 proposes the creation of a Washington **State Naturopathic Association** to regulate the practice of naturopathy, which is defined as "the science and art of applied healing forces, emphasizing the application of prophylactic, diagnostic and therapeutic naturism; thus enabling the physician to prescribe or administer to human trauma or disease by applying any one or more of the psychological, physiological, mechanical, manual, chemical, biological or material forces or agencies in restorting a normal state of being." H. 135 proposes the creation of a **sanipractic physicians' examining board** of Washington and defines sanipractic as "the science and art of applied prophylactic and therapeutic sanitation, which enables the physician to direct, advise, prescribe or apply food, water, roots, herbs, light, heat, exercises (active and passive), manipulation, adjusting tissue, vital organs or anatomical structure by manual, mechanical or electrical instruments or appliances; or other natural agency, to assist nature restore a psychological and physiological interfunction for the purpose of maintaining a normal state of health in mind and body." H. 148 proposes that any hospital **shall be liable for damages** caused by the negligence of the hospital or any employee or agent of the hospital while acting within the scope of his employment. H. 157 proposes the creation of an **examining committee of physical therapists** and defines physical therapy as the treatment of any bodily or mental condition of any person by the use of the physical, chemical and other properties of heat, light, water, electricity, massage and therapeutic exercise which includes posture and rehabilitation procedures. The use of roentgen rays and radium for diagnostic and therapeutic purposes and the use of electricity for surgical purposes including cauterization are not authorized under the term. H. 167 proposes the creation in the Department of Health of a **division of cancer control** to make investigations concerning cancer, the incidence, the prevention and treatment thereof and the mortality therefrom, and to take such action as may be necessary to assist in a reduction in the mortality due thereto.

## West Virginia

***Bills Introduced.***—H. 16 proposes regulations for the compulsory immunization of school children for **smallpox and diphtheria.** H. 70 and S. 44 propose the establishment and maintenance in Charleston of a ***four year school of medicine*** and dentistry of West Virginia University. H. 144 proposes general amendments to the *medical practice act,* including the creation of a **medical licensing board,** the right to make use of the injunctive process in restraining violations of the act and the biennial registration of licentiates. S. 21 proposes to direct the state health commissioner to appoint a director of **the division of alcohol *studies and rehabilitation*** who shall have knowledge of the problems of alcoholism, treatment and rehabilitation of persons addicted to the excessive use of alcoholic beverages and for the promotion of preventive and educational programs in cooperation with state and local educational authorities.

# Washington Letter

*(From a Special Correspondent)*

Feb. 21, 1949.

### Detailed Report on A-Bomb Effects in Preparation

More than twenty military and civilian scientists are working on the first government-sponsored public report on the atomic bomb and its effects, according to an announcement by the Atomic Energy Commission. Civil defense indoctrination and training of armed forces personnel are two of the chief uses to which the book-sized report will be put. The volume is scheduled to be published in June.

The chapter on human damage from atomic explosion is being written by Dr. Shields Warren and Col. James P. Cooney. Both are members of the Commission's Washington staff, the former as director of the Division of Biology and Medicine and Colonel Cooney as a medical liaison officer. Assisting them is Dr. H. O. Whipple of the Los Alamos Scientific Laboratory's health division.

Another chapter will be devoted to civil defense problems that may arise from use of atomic weapons. Its author is Dr. George M. Lyon, of the Office of Civil Defense Planning and the Veterans Administration. Structural damage resulting from an air burst, basic physics of the bomb, radiologic effects in water and meteorologic problems are among other topics that will be covered in the yet untitled book.

The Atomic Energy Commission disclosed simultaneously that twenty-seven nations have now qualified to receive radioisotopes for medical and biologic research from the Oak Ridge "pile." Latest to comply with provisions are Mexico, Guatemala, Brazil, Colombia and Finland. Since September 1947, a total of 384 shipments have been made to nineteen nations. Isotopes of fourteen elements have been shipped, aggregating 7,193 millicuries.

### Atomic Energy Commission Reports on Progress in Medicine and Biology

Noteworthy advances in research in medicine and biology are cited in the fifth semiannual report of the Atomic Energy Commission submitted to Congress early in February. Radioisotopes produced by the commission are being used extensively in diagnosis and, to a lesser degree, in treatment of cancer, said the detailed report, adding that induction of cancer in experimental animals through application of radioisotopes has now become commonplace.

Relative to the Atomic Casualty Commission, financed with Atomic Energy Commission funds, the report discloses that laboratories are now functioning in Hiroshima and Kure, Japan, with 41 Americans and 140 Japanese engaged. "Thus far, the investigations have shown no evidence of any alteration in the offspring of exposed individuals, nor has there been any demonstrable increased incidence of stillbirths or miscarriages," according to the report. "In view of the fact that the gene injured by radiation is a recessive characteristic, it will be many years before a final statement can be developed on this problem."

### First Paraplegic Miners Hospitalized in Washington

Eight paralyzed coal miners, the first to be hospitalized in Washington under the United Mine Workers rehabilitation program, arrived in the Capital Friday, February 11, and were admitted to George Washington University Hospital. All were crippled in mining accidents. To date the United Mine Workers' Welfare and Retirement Fund has hospitalized two hundred such patients on the East and West coasts. Rehabilitation of the eight men in George Washington University Hospital will be supervised by Dr. Charles S. Wise.

### Psychiatrist and Dentist Added to Medical Advisory Board

Secretary of Defense Forrestal has announced the addition of Dr. Francis J. Braceland, of Rochester, Minn., and Dr. Daniel F. Lynch, of Washington, to the Armed Forces Medical Advisory Committee. The appointments bring the membership of the newly formed committee to eleven, exclusive of the lay chairman, Charles Proctor Cooper, and the Army, Navy and Air Force medical heads, who serve ex officio.

Dr. Braceland is professor of psychiatry at the University of Minnesota Graduate School and consultant to the Mayo Clinic. He also serves the Navy and Veterans Administration in consultant capacities. Dr. Lynch, a trustee of American Dental Association, is a dental surgeon in private practice here and is a consultant to the Navy Surgeon General, Army Medical Center and St. Elizabeths Hospital, Washington.

### Symposiums Planned by Research Study Sections

About one hundred educators, practitioners and others concerned with the various aspects of sanitation problems attended the first symposium of 1949 sponsored by the Division of Research Grants and Fellowships, National Institutes of Health. It was held January 26-27 in the Commerce Department auditorium, twenty-five scientific papers on recent research in milk and food sanitation being presented at the four sessions that were held. Presiding officers were V. M. Ehlers, Texas State Department of Health; Dr. W. L. Mallman, Michigan State College; Maj. Raymond J. Karpen, Army Surgeon General's Office, and Dr. F. C. Bishopp, U. S. Department of Agriculture.

Plans are being made for a symposium here in April sponsored by the antibiotics study section of the National Institutes of Health, and at least one or two others are expected to be scheduled for this spring.

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# Coming Medical Meetings

Alabama, Medical Association of the State of, Montgomery, April 19-21. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary.

Alaska Territorial Medical Association, Juneau, March 3-5. Dr. William P. Blanton, Box 2569, Juneau, Secretary.

American Academy of General Practice, Cincinnati, Netherlands Plaza Hotel, March 7-9. Mr. Mac F. Cahal, 231 W. 47th St., Kansas City, Mo., Executive Secretary.

American Association for Thoracic Surgery, New Orleans, March 29-31. Dr. Brian Blades, George Washington University Hospital, Washington, D. C., Secretary.

American Association of Anatomists, Philadelphia, April 13-15. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

American Association of Pathologists and Bacteriologists, Boston, April 15-16. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Broncho-Esophagological Association, Chicago, Drake Hotel, April 18-19. Dr. Edwin N. Broyles, 1100 N. Charles St., Baltimore 1, Secretary.

American College of Allergists, Chicago, April 14-17. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.

American College of Physicians, New York, March 28-April 1. Dr. George Morris Piersol, 4200 Pine St., Philadelphia 4, Secretary General.

American Orthopsychiatric Association, Chicago, Stevens Hotel, April 4-6. Nina Ridenour, Ph.D., 25 W. 54th St., New York 19, Secretary.

American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, New York, Hotel Waldorf-Astoria, March 4 Dr. Norman N. Smith, 291 Whitney Ave., New Haven 11, Conn., Secretary.

American Physiological Society, Detroit, April 19-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Executive Secretary.

American Society for Pharmacology and Experimental Therapeutics, Detroit, April 18-22. Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Secretary.

American Society of Biological Chemists, Detroit, April 17-22. Dr. Otto A. Bessey, 1853 W. Polk St., Chicago 12, Secretary.

American Surgical Association, St. Louis, April 20-22. Dr. Nathan Womack, University of Iowa, Iowa City, Secretary.

Arkansas Medical Society, Little Rock, April 14-16. Dr. William R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, Palmer House, March 1-4. Dr. H. Kenneth Scatliff, 30 N. Michigan Ave., Chicago 2, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, March 14-17. Miss Thelma Webb, 1133 Medical Arts Bldg., Dallas, Executive Secretary.

Iowa State Medical Society, Des Moines, April 18-21. Dr. Allan B. Phillips, 406 Sixth Ave., Des Moines 9, Secretary.

Michigan Postgraduate Clinical Institute, Detroit, Book-Cadillac Hotel, March 23-25. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing 8, Mich., Secretary.

Missouri State Medical Association, Kansas City, March 27-30. Mr. T. R. O'Brien, 634 N. Grand Blvd., St. Louis 3, Secretary.

New Orleans Graduate Medical Assembly, New Orleans, Municipal Auditorium, March 7-10. Dr. W. D. Beacham, 1430 Tulane Ave., New Orleans, Secretary.

Ohio State Medical Association, Columbus, April 19-21. Mr. Charles S. Nelson, 19 E. State St., Columbus 15, Executive Secretary.

Southern Branch, American Public Health Association, Dallas, Texas, Baker Hotel, April 14-16. Dr. George A. Denison, 600 S. Twentieth St., Birmingham, Ala., Secretary.

Southwest Allergy Forum, El Paso, Texas, Hotel Paso del Norte, April 4-5. Dr. O. E. Egbert, First National Bank Bldg., El Paso, Secretary.

Tennessee State Medical Association, Chattanooga, April 12-14. Dr. W. M. Hardy, 706 Church Street, Nashville 3, Secretary.

# GOVERNMENT SERVICES

## NAVY

### MEDICAL RESEARCH UNIT IN CAIRO

The United States Naval Medical Research Unit 3, established in Egypt in 1946, has undertaken two broad programs of medical research: 1. Study of human parasites responsible for causing or transmitting diseases of medical importance; at present these studies are in bilharzia and the biology of flies. 2. Study of the physiology and the biochemistry of patients suffering from such diseases as typhus, typhoid, amebiasis, relapsing fever and infectious hepatitis.

The Royal Egyptian Government last June leased to the United States Government an acre of land adjacent to the Abbassia Fever Hospital for twenty-five years, on which site the existing buildings are being remodeled and new ones being erected for laboratories in the fields of bacteriology, biochemistry, entomology, parasitology, physiology and virology and dental research.

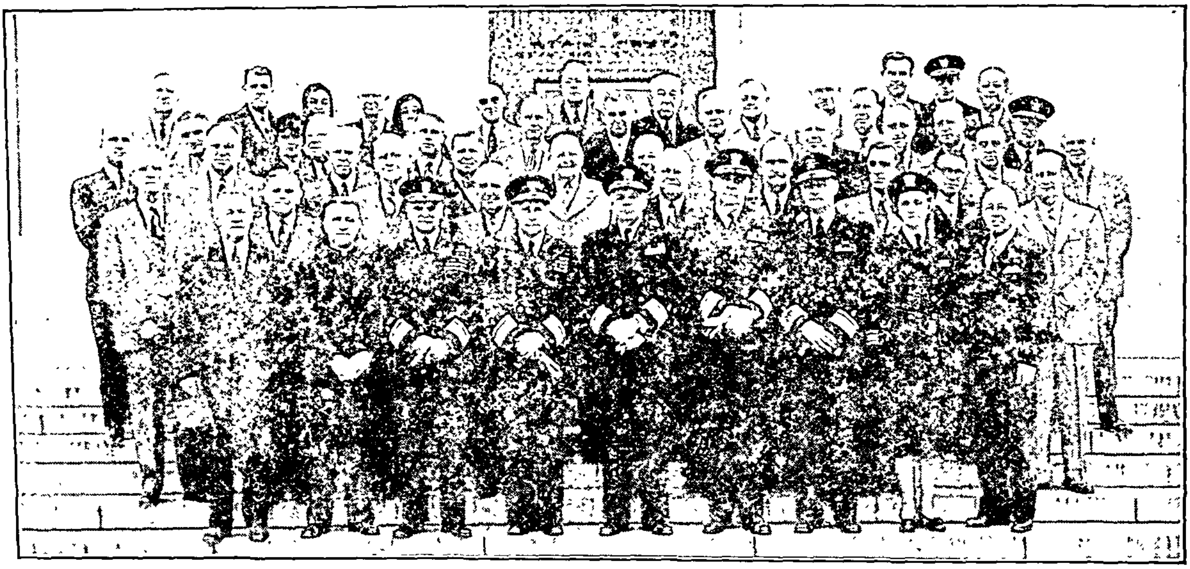
The laboratories will be staffed by American scientists and technicians, as well as by guest investigators from Egypt and other countries. The American honorary consultants will visit Cairo in a few months to meet with their Egyptian colleagues, of whom the following three were recently appointed: Sir Aly Tewfik Shousha Pasha, M.D., K.B.E., Com. O. Nil., Under Secretary of State for Medical Affairs; Hafez Afifi Pasha, M.D., G.O.O. Ismail, G.C.O.Nil., former Egyptian Ambassador to England, and Ibrahim Shawki Bey, M.D., Rector of the Fouad I University.

The American honorary consultants to Naval Research Unit 3 in Cairo are: Commander R. A. Phillips, Medical Officer in Command; Francis G. Blake, M.D., dean of the School of Medicine, Yale University, New Haven, Conn.; Lowell T. Coggeshall, M.D., dean of the Medical School, University of Chicago; Wallace O. Fenn, Ph.D., professor of physiology, School of Medicine, University of Rochester, New York, and John S. Lockwood, M.D., professor of experimental surgery, College of Physicians and Surgeons, Columbia University, New York.

### PERSONAL

Lieut. Emmett P. Bryant, M.R.C., of El Dorado, Ark., has been voluntarily recalled to active duty and will be assigned to instruction as a resident in obstetrics and gynecology at the Naval Hospital, Great Lakes, Ill.

### CONSULTANTS TO THE BUREAU OF MEDICINE AND SURGERY



The first joint meeting of honorary and reserve consultants was held at the Naval Medical Center, Bethesda, Md., Jan. 28-29, 1949:

First row, left to right: Frank H. Lahey, M.D., Hon. Consult., Boston; Paul A. McNally, S.J., Hon. Consult., Dean, Georgetown Medical School; Rear Admiral Joel T. Boone, M.C., U.S.N., General Medical Inspector; Rear Admiral Morton D. Willcutts, M.C., U.S.N., Medical Officer in Command, National Naval Medical Center; Rear Admiral Lamont Pugh, M.C., U.S.N., Deputy and Assistant Chief of the Bureau, who acted as chairman; Rear Admiral Arthur H. Dearing, Asistant Chief of Bureau for Personnel; Rear Admiral C. V. Rault, D.C., U.S.N., Assistant Chief of Bureau for Dentistry; Captain N. J. DeWitt, Superintendent, Navy Nurse Corps, and Meyer Weiner, M.D., Hon. Consult., Coronado, Calif.

Second row, left to right: Charles Sheard, Ph.D., Hon. Consult., Rochester, Minn.; A. C. Ivy, M.D., Reserve Consult., University of Illinois, Chicago; Edward A. Strecker, M.D., *Hon. Consult., Philadelphia; Roscoe Lloyd* Sensenich, M.D., Hon. Consult.; President, American Medical Association, South Bend, Ind.; Oswald S. Lowsley, M.D., Hon. Consult., New York; Clyde E. Minges, D.D.S., Hon. Consult.; President, American Dental Association, Rocky Mount, N. C.; W. Calhoun Stirling, M.D., Hon. Consult., Washington, D. C.; Lowell T. Coggeshall, M.D., Reserve Consult., Dean, Div. of Biol. Sciences, Univ. of Chicago, Chicago; Arthur M. Culler, M.D., Reserve Consult., St. Louis, and Wendell G. Scott, M.D., Reserve Consult., St. Louis.

Third row, left to right: Paul W. Greeley, M.D., Reserve Consult., Chicago; Howard K. Gray, M.D., Reserve [illegible] n.; Edward Leroy Bortz, M.D., Hon. Consult., Philadelphia; R. Louise McManus, Ph.D., Hon. Consult., New York; James [illegible] n. Consult., Atlanta, Ga.; Ernest Edward Irons, M.D., Hon. Consult., President-Elect, American Medical Association; Shiel [illegible] ve Consult., Boston; Joseph L. T. Appleton, D.D.S., Hon. Consult., Philadelphia; M. G. Westmoreland, M.D., Reserve Consu [illegible] College of American Pathologists, Chicago; F. J. Braceland, M.D., Reserve Consult., Rochester, Minn.; Philip E. Adams, [illegible] American Dental Association; Hon. Consult., Boston; Alphonse McMahon, M.D., Reserve Consult., St. Louis; Robert P. Fischelis, Pharm. D. Sc.D., Hon. Consult., Office of Secretary, American Pharmaceutical Association; Donald Hale, M.D., Reserve Consult., Cleveland; Daniel F. Lynch, D.D.S., Reserve Consult., Washington, D. C.; Sterling Bunnell, M.D., Hon. Consult., San Francisco; Joseph Barr, M.D., Reserve Consult., Boston; Capt. L. R. Newhouser, M.C., U.S.N., Bureau of Medicine and Surgery, and Paul Titus, M.D., Reserve Consult., Pittsburgh.

Last row, left to right: Edwin N. Broyles, M.D., Reserve Consult., Baltimore; Richard B. Cattell, M.D., Hon. Consult., Boston; Sister Mary Geraldine Kulleck, Hon. Consult., St. Louis; George M. Lyon, M.D., Reserve Consult., Washington, D. C.; Sister Mary Gregory Wurst, St. Louis; Marion Sulzberger, M.D., Reserve Consult., New York; Donald Anderson, M.D., Reserve Consult., Council on Medical Education and Hospitals, American Medical Association, Chicago; Edwin J. Cohn, M.D., Hon. Consult., Harvard Medical School, Boston; Ernest L. Stebbins, M.D., Hon. Consult., Johns Hopkins University, Baltimore; Donald G. Balfour, M.D., Hon. Consult., Rochester, Minn.; Gordon Barnes, Bureau of Medicine and Surgery; Comdr. Richard H. Fletcher, M.C., U.S.N., Bureau of Medicine and Surgery, and Winchell M. Craig, M.D., Reserve Consult., Rochester, Minn.

# Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

## CONNECTICUT

**Seminar on School Health Education.**—Yale University and twelve state and national health and education agencies will offer a graduate seminar in school health education June 27 to August 5. The program is designed to meet the needs of elementary and secondary school teachers responsible for instructing or organizing health education programs. Dr. Charles C. Wilson, professor of education and public health at Yale, is in charge of the course. Information may be obtained from Clyde M. Hill, chairman of the Yale University Department of Education, New Haven.

**Fellowship in Occupational Medicine.**—Yale University, New Haven, and the New Departure Division of the General Motors Corporation in Bristol announce the joint sponsorship of a one year clinical fellowship for a graduate course in occupational medicine to be directed by the Yale Institute of Occupational Medicine and Hygiene and the New Departure Division in cooperation with the state department of health. A short period of orientation in the Connecticut Bureau of Industrial Hygiene will be included in the section on industrial hygiene and safety. Candidates must be graduates of a class A medical school and rank in the upper two thirds of their classes. At least twelve months' rotating internship, or its equivalent in hospital training, is required along with an interest in occupational medicine and hygiene, public health, health conservation and case-finding programs. A license to practice medicine and surgery in Connecticut is also required. A candidate who completes his fellowship satisfactorily will be awarded a certificate. Information may be obtained from the Institute of Occupational Medicine and Hygiene at Yale University.

## ILLINOIS

**Public Health Association Meeting.**—The Illinois Public Health Association will hold its annual meeting at the La Salle Hotel, Chicago, April 7-8. Among the participants will be Drs. Leonard A. Scheele, Surgeon General, U. S. Public Health Service and Dr. Leroy E. Burney, state health director, Indianapolis. It is expected that the Illinois Association of Medical Health Officers will complete organization at the time of the public health association meeting. The decision to reactivate the health officers' association was made at the annual conference for the local and district health officers in Springfield last October. Dr. Winston H. Tucker, Evanston, is chairman of the committee.

**County Society Lectures.**—Lectures arranged through the Scientific Service Committee of the Illinois State Medical Society during March and April are as follows:

March 10, La Salle County Medical Society in Bloomington, Hermann W. Wellmerling, Bloomington, Fractures.
March 22, DeKalb County Medical Society in DeKalb, Roland R. Greene, Chicago, Gynecologic and Obstetric Endocrine Problems.
March 25, McDonough County Medical Society in Macomb, Ben W. Lichtenstein, Chicago, Multiple Sclerosis.
April 8, Kankakee County Medical Society in Kankakee, Charles L. Dunham, Chicago, Rheumatoid Arthritis with Particular Reference to the Differential Diagnosis of Rheumatoid Arthritis and Gout, Disseminated Lupus and Scleroderma.
April 19, Macon County Medical Society in Decatur, Henry Buxbaum, Chicago, Common Obstetrical Problems.
April 21, Logan County Medical Society, Richard Allyn, Springfield, Nephritis.
April 22, McDonough County Medical Society in Macomb, Paul A. Campbell, Chicago, Differential Diagnosis of Hearing Disorders.
April 28, Will-Grundy County Medical Society in Joliet, Philip Thorek, Chicago, Vagotomy for Peptic Ulcer and Ulcerative Colitis.

### Chicago

**Society News.**—The Chicago Dermatological Society on January 19 elected the following officers: Drs. Carl W. Laymon, Minneapolis, president, and James R. Webster, secretary-treasurer.

**Gift to Establish Eye Bank.**—A check for $50,000 has been received by Mercy Hospital for the establishment of an eye bank to be known as the Patrick A. Nash Memorial in the proposed $6,000,000 new Mercy Hospital on the Near North Side.

**Cleft Palate Institute.**—Northwestern University has established the Cleft Palate Institute under the cooperation of the schools of dentistry, medicine and speech. A grant of $25,000 from the Clara Abbott Fund of the university will provide partial support. The staff includes John R. Thompson, D.D.S., director and professor of orthodontia in the dental school, where the institute is situated; Dr. Frederick W. Merrifield, plastic surgeon; Harold Westlake, Ph.D., of the school of speech; Touro M. Graber, D.D.S.; Max Kuharich, D.D.S., and Gordon D. Howard, D.D.S., of the dental school, and Raymond Carhart, Ph.D., of the schools of medicine and speech. Patients are referred to the institute by social agencies, schools and doctors in private practice. In addition to giving diagnostic service and making recommendations for treatment, the institute will function as a research and teaching unit.

## INDIANA

**Postgraduate Course on Malignant Disease.**—The second annual postgraduate course on malignant disease is being offered to practicing physicians by the Indiana University School of Medicine, Bloomington-Indianapolis, on April 6-7 with the cooperation of the Indiana Cancer Society. Among the speakers will be Dr. Cornelius P. Rhoads, Memorial Hospital, New York.

**Research Wing for James Whitcomb Riley Hospital.**—Construction is under way on a $400,000 research wing at the James Whitcomb Riley Hospital for Children, Indianapolis, to provide laboratories and other space for research on diseases of children under the supervision of the Indiana University School of Medicine, Bloomington-Indianapolis. A $250,000 grant in support of this research program has been made by the Riley Memorial Association.

## KENTUCKY

**Personal.** — Dr. Tracy Jones, Harlan, has been appointed director of the Division of County Health Work, Kentucky State Department of Health, succeeding Dr. Richard B. Fulks, who resigned July 1. He will also act as deputy health commissioner.

**Dr. Phair Goes to Cincinnati.**—Dr. John J. Phair has resigned as director of the Louisville-Jefferson County Board of Health and head of the department of preventive medicine and public health at the University of Louisville School of Medicine to join the faculty of the University of Cincinnati College of Medicine, where he will also devote his time to study and research. Dr. Phair received his M.D. degree from the University of Cincinnati in 1929. He has been a member of the faculties of the University of Cincinnati and Johns Hopkins University, where he received his D.P.H. degree. Before and during the war he served as a medical consultant to the Secretary of War.

## LOUISIANA

**Personal.**—Dr. Charles E. Dunlap, professor of pathology in the Tulane University of Louisiana School of Medicine, New Orleans, has been appointed advisory editor of *Cancer Research*, official publication of the American Association for Cancer Research.

**Refresher Course in Pediatrics.**—The Louisiana State University School of Medicine, New Orleans, will present a refresher course in pediatrics at Charity Hospital and the medical school March 21-25. This program has been arranged primarily for the family physicians of Louisiana, and the attendance is restricted to 40. Dr. William L. Bradford, University of Rochester (N. Y.) School of Medicine and Dentistry, and Dr. Harry Gordon, University of Colorado School of Medicine, Denver, will assist the Louisiana State University faculty in presenting the program.

## MARYLAND

**Grant for Research by Dr. McCollum.**—The Robert Gould Research Foundation, Cincinnati, has made a grant-in-aid of $5,000 for research in 1949 by Elmer V. McCollum, Sc.D. professor emeritus of biochemistry at the Johns Hopkins University School of Hygiene and Public Health, Baltimore. The fund will enable Dr. McCollum to conduct research aimed at simplifying the method of the separation of amino acids from the products of digestion of proteins.

**New Health Television Service.**—On December 15 the first of a new series of weekly health television programs "Your Family Doctor," was given over Station WMAR-TV, Baltimore, under the joint auspices of the Baltimore City Health Department and the Medical and Chirurgical Faculty of Maryland. The programs will bring to the public up-to-date information concerning the individual and the community. They are broadcast each Tuesday evening at 8 o'clock on channel 2. The fictitious family doctor for the programs is Dr. John Worthington, a name selected because Dr. Worthington was the first health officer for Baltimore, appointed by the governor in 1792 when yellow fever was present in the community.

## MISSOURI

**Annual State Medical Meeting.**—The Missouri State Medical Association will hold its annual session in the Municipal Auditorium, Kansas City, March 28-30, under the presidency of Dr. Robert Mueller, St. Louis. Out-of-state physicians speaking on the scientific program are as follows:

Joseph T. Roberts, Little Rock, Ark., Pathology of Coronary Artery Disease.
Paul S. Barker, Ann Arbor, Mich., Electrocardiographic Changes in Coronary Disease.
Emmett B. Bay, Chicago, Acute Myocardial Infarction.
Wesley W. Spink, Minneapolis, Undulant Fever.
Winfred Overholser, Washington, D. C., Role of Psychiatry in General Medicine.
Howard R. Mahorner, New Orleans, Modern Surgical Procedures for Carcinoma of the Colon and Rectum
Francis M. Woods, Brookline, Mass., Problem of Lung Cancer.
Arthur R. Colwell, Evanston, Ill., Treatment of Diabetes Mellitus with Intermediate Insulin.
Andrew C. Ivy, Chicago, and J. Dewey Bisgard, Omaha, Medical and Surgical Standpoints, respectively, of Gastric Pain.

A symposium on trauma will be presented March 29 with Dr. George A. Aiken, Marshall, as moderator of a panel of four physicians from the state. The annual banquet will be held Monday at 7:30 p. m., when Dr. Ivy will speak on "The Dangers of State Medicine."

## NEW YORK

**Fellowships in Public Health.**—The New York State Department of Health is offering fellowships to train physicians to qualify for public health positions in the state. Each carries a stipend of $3,600 a year. Types of training offered include that for health officer, tuberculosis physician, clinical consultant and laboratory director. Information may be obtained by writing to Dr. Franklyn B. Amos, director, Office of Professional Training, New York State Health Department, Albany 1.

**Postgraduate Instruction.**—The Medical Society of the State of New York with the cooperation of the New York State Department of Health has arranged a lecture to be given at the Arnot-Ogden Memorial Hospital, Elmira, March 16 at 4 p. m. Dr. Stanley E. Bradley, New York, will speak on "Nephritis and Lower Nephron Nephrosis." The Jefferson County Medical Society, meeting March 10 at 8 p. m. in the Hotel Woodruff, Watertown, will hear Dr. Samuel Standard, New York, speak on "Blood and Blood Substitutes."

**Lectures on Radium Therapy.**—The Educational Committee of the Westchester Cancer Committee has arranged to present three lectures on radium therapy to county physicians at the White Plains Hospital. On February 28 Dr. John Kelly, New York, will discuss the use of radium in the gynecologic field, and Willet F. Whitmore, D.Sc., New York, will speak on the use of radium in the urologic field. On March 7 Dr. William S. MacComb, also of New York, will discuss the use of radium on cancer involving the head and the neck.

### New York City

**Clinical Research Meeting.**—The Committee on Medical Education of the New York Academy of Medicine is extending an invitation to all research workers in greater New York City and neighboring cities within a radius of 100 miles to submit papers on the results of original research in clinical medicine to be presented at a meeting for this purpose June 1. Presentations should be submitted in abstract in triplicate not to exceed 500 words in length to the secretary of the committee not later than April. A formal invitation to participate in the June program will then be extended by the committee to authors of the selected papers. Preference will be given to papers that have not been presented before a national or local society other than intramural. The address is 2 East 103rd Street, New York 29.

**Study of Teaching Needs in American University.**—Dr. Henry E. Meleney, professor of preventive medicine, New York University-Bellevue Medical Center, has been granted a six months' sabbatical leave to make a study of public health teaching needs at the American University of Beirut, Lebanon. Under a grant from the Commonwealth Fund, Dr. Meleney will prepare a report of teaching needs on the undergraduate and graduate level in the school of medicine. Largest overseas educational institution supported by American philanthropy, the University of Beirut has 2,500 students, representing forty nationalities, mostly from Saudi Arabia, Palestine, Syria, Lebanon and Iraq. Since its founding eighty years ago, it has pioneered in introducing the American type of medical education. Dr. Meleney, a graduate of Columbia University College of Physicians and Surgeons, 1915, was a member of the staff of the Peking (China) Union Medical College for seven years and was associate professor of preventive medicine at Vanderbilt University before coming to the New York University College of Medicine.

**Mount Sinai Hospital Expansion Projects.**—To meet demands for service and to intensify educational and research activities, the Mount Sinai Hospital of New York has embarked on a $7,000,000 expansion program that will add a ten story maternal pavilion and two research laboratories to its present seventeen building plant. The buildings will have a 160 foot frontage on Central Park and will occupy about two thirds of a city block. The city has added to this lot by deeding to the hospital 99th Street between Fifth and Madison Avenues. The 160 bed maternity building will include an Institute of Biogenetics for education and research. Among its features will be provisions for "rooming-in" of the infant and the mother and an entire floor for 40 premature babies, the latter to be financed partly by a grant from the federal government under the Hill-Burton Hospital Survey and Reconstruction Act. The general laboratory building, a seven story structure, will have a floor space of 50,000 square feet. The hospital's chemistry, physics and bacteriology departments will be moved to this building, and the present quarters will be renovated for the exclusive use of the pathology department. The Institute of Research, named for Dr. Albert A. Berg, hospital staff surgeon who donated funds for its construction, will be limited to specialized investigative work by a small group of researchers. Current expansion will give the hospital, which now services almost 20,000 persons a year, a capacity of 1,000 beds and a group of twenty buildings extending from 101st to 98th Street and from Fifth to Madison Avenue.

## PENNSYLVANIA

**Conference on Psychiatric Research.**—The Western State Psychiatric Institute in Pittsburgh will hold its fourth annual Coordinating Conference March 31-April 1 on the Progress and Implications in Psychiatric Research. Among those appearing on the program are Dr. Oskar Diethelm, New York; Dr. Harry C. Solomon, Boston; Dr. Francis H. Sleeper, Augusta, Maine; Dean Ruth P. Kuehn, Pittsburgh; Miss Ester Garrison, Washington, D. C.; Mrs. Mildred Buchwalder Beck, New York; Elliott Rodnick, Worcester, Mass.; Dr. Frederick Wyatt, Framingham, Mass.; Davenport Hooker, Ph.D., Pittsburgh, and Dr. Warren S. McCulloch, Chicago. The dinner speaker will be Dr. George S. Stevenson, New York, medical director of the National Committee for Mental Hygiene, Inc., and president-elect of the American Psychiatric Association. His subject will be "The Citizen and the Community in the Advancement of Mental Health." All professionally interested persons in Pennsylvania and vicinity are cordially invited to attend.

### Philadelphia

**Dr. Houssay to Lecture.**—The H. B. Shmookler Memorial Lecture of Mount Sinai Hospital will be delivered by Dr. Bernardo A. Houssay, Buenos Aires, Argentina, on "The Role of the Hypophysis in Carbohydrate Metabolism and Diabetes" March 7 at 8:30 p. m. in the Barclay Hotel Ballroom.

### Pittsburgh

**Audiology Clinic.**—The first audiology clinic in Pittsburgh has been installed this year in the Eye, Ear, Nose and Throat Hospital for the treatment of hearing and speech defects. Dr. Lee Doerfler, professor of audiology in Northwestern University, has been named managing director of the department. Serving as executive director is Dr. Kenneth M. Day, hospital staff member.

## TEXAS

**Dr. Wright Honored.**—Dr. Elva A. Wright, Houston, was honored at a special meeting in the auditorium of Baylor University College of Medicine, Houston, marking the presentation by Dr. Wright of a $5,000 fellowship fund to the Texas Medical Center. A portrait of Dr. Wright, pioneer in the treatment of tuberculosis in Harris County, was presented to the hospital. Dr. Richard H. Overholt, Boston, president of the American College of Chest Physicians, spoke on "Surgery's Place in the Treatment of Pulmonary Tuberculosis." The program was sponsored by the staff and board of directors of the hospital and the Harris County Medical Society.

**Dr. Burns Goes to Kansas City.**—Dr. Beryl I. Burns, administrator of hospitals at the University of Texas Medical Branch, Galveston, and professor of anatomy, has accepted appointment as director of municipal hospitals for Kansas City, Mo., effective in March. While associated with the University of Texas Dr. Burns organized the first broad residency training program to be established in the state. Under his administration over eighty residents and fellows were appointed for the hospital services annually. Dr. Jack R. Ewalt, professor of neuropsychiatry and director of the Galveston State Psychopathic

Hospital of the university, will succeed Dr. Burns. Dr. Ewalt is a graduate of the University of Colorado School of Medicine, Denver, and has been associated with the Medical Branch of the University of Texas since 1942.

## WEST VIRGINIA

**Conference of Officers of Component Societies.**—Presidents and secretaries of county and area medical societies from every section of West Virginia joined with the eighteen member council of the State Medical Association at a meeting in Charleston on January 9 in initiating a campaign designed to make 1949 a "health and higher education year." The occasion was the annual conference of officers of component societies, and discussion at the all day meeting was limited to public relations, administration and the legislative program, which has the unanimous approval of the council and the fact finding and planning, and legislative committees.

## GENERAL

**Meeting of Anesthesiologists.**—A joint meeting of the American Society of Anesthesiology and its southeastern section will be held April 7-9 at the Statler Hotel, Washington, D. C. The papers to be presented will include among others a proposed plan for postgraduate training in anesthesiology, spinal anesthesia, group practice and thiopental sodium and curare for suspension laryngoscopy. Dr. Lloyd H. Mousel, Washington, D. C.; Edward B. Tuohy, Washington, D. C.; Perry P. Volpitto, Augusta, Ga., and Donald H. Stubbs, Washington, D. C., will preside.

**Meeting of Pathologists.**—The Middle Eastern regional section of the College of American Pathologists will hold a joint meeting in conjunction with the Philadelphia Pathological Society and the Philadelphia County Medical Society March 10 at the county society building in Philadelphia. The program is as follows:

Milton Rapoport, Philadelphia, Present Status of Micro-Chemical Methods.
John E. Gregory, Philadelphia, Hypersensitivity.
John R. Neefe, Philadelphia, Laboratory Aspects of Hepatitis and Other Liver Diseases.
Nathan Chandler Foot, New York, Melanotic Tumors.
Armand J. Quick, Milwaukee, Laboratory as an Aid in the Diagnosis and Prognosis of the Hemorrhagic Disorders.
Edward D. DeLamater, Philadelphia, Chemistry of Staining Reactions in Common Use by Pathologists.

The guest speaker for the evening program is Dr. William Boyd, Toronto, Canada.

**Campaign to Speed Medical Research.**—Uniting in a simultaneous effort throughout the United States, ninety-nine national scientific and civic organizations will seek to speed medical research through a campaign during March under the direction of the National Society for Medical Research. The campaign, to be directed against research bans erected by the antivivisection cult, comes at a time when legislative battles on the vivisection question are raging in many states. It will seek to clarify the role of animal experimentation and biologic research. Organizations cooperating include the American Dental Association, American Diabetes Association, American Medical Association, American Public Health Association, American Red Cross, American Veterinary Medical Association, Association of American Medical Colleges, National Research Council, National Foundation for Infantile Paralysis, National Science Teachers Association and U. S. Junior Chamber of Commerce.

**Survey of Industrial Health Facilities.**—A two year cross sectional survey of industry's health facilities, conducted by Dr. Clarence O. Sappington, Chicago, has been issued by the Industrial Hygiene Foundation, located at Mellon Institute, Pittsburgh. The field study, embracing 277 plants in 33 states and covering an industrial population of 1,180,551 employees, is published as a bulletin entitled "Industrial Health Department Functions and Relationships." Physical examinations of workers are the general rule in industry today, the investigation shows, and in about half the plants surveyed the examinations are used to aid in successful job placement. About 54 per cent of the plants surveyed had industrial hygiene services in some form. The report suggests the following improvements to existing services: (1) more emphasis on having a physician in charge of the service in establishments employing less than 1,500 persons; (2) nurses should work directly under the supervision of a physician, especially in small plants where the physician is on a part time basis; (3) greater use of dispensaries in groups under 1,000; (4) greater improvement generally in the extent and nature of services rendered in plants having less than 1,000 employees; (5) greater improvement for minor surgery and minor illness in these small groups; (6) greater use of periodic examinations in all groups; (7) greater use of industrial hygiene facilities, particularly in plants employing less than 4,000 persons; (8) greater use of dental services in all plants; (9) more instruction in health and safety; (10) physicians should participate in accessory activities such as rehabilitation activities, maintenance of individual health records under medical control, labor relations, job analysis activities and case finding, and (11) the health service department of the corporation should in all instances have the final word on health problems and should be in active and cooperative relationship with top management.

The report brings up to date material contained in Bulletin 99 of the U. S. Public Health Service, written in 1919 and entitled "Medical and Surgical Care of Industrial Workers.' The survey is available at $2 per copy from the foundation.

## PUERTO RICO

**Institute of Forensic Medicine.**—The insular government has established the first Institute of Forensic Medicine in a new two story $26,000 annex building to the Municipal Hospital of San Juan, operating under the auspices of the School of Tropical Medicine. It has its own autopsy and crime detention laboratories. The legislature of Puerto Rico approved an appropriation of $25,000 for initial expenses and $45,000 for operating expenses up to June 30. The institute now serves the whole island.

**Public Health Association Meeting.**—The eighth annual meeting of the Puerto Rico Public Health Association was held February 9-12 at the School of Tropical Medicine in San Juan with Dr. Rafael Timothee presiding. Visiting physicians included Drs. Herman E. Hilleboe, commissioner of health, New York; John B. Hozier, U. S. Public Health Service, New Orleans; Edward G. McGavran, public health school, University of North Carolina, Chapel Hill; W. McKee German, University of Cincinnati College of Medicine; John S. Moorhead, commissioner of health, Virgin Islands, and Glenn S. Usher, Meridian, Miss., U. S. Public Health Service.

## FOREIGN

**Swiss Internists Meeting.**—The annual meeting of the Swiss Society of Internal Medicine will be held in conjunction with the Swiss societies of cardiology and hematology in Lugano May 6-8. Subjects under discussion will be anticoagulants in the prophylaxis and therapy of thrombosis, poliomyelitis and diabetes.

**German Congress on Internal Medicine.**—The Congress of the German Society of Internal Medicine will be held in Wiesbaden April 25-28 under the presidency of Professor Curt Oehme, Medizinische Universitäts-Poliklinik, Heidelberg. The subjects to be discussed include psychosomatic medicine, protein metabolism and protein therapy, chemotherapy of cancer, tuberculosis and endocarditis and circulatory problems. Application for attendance and for reading papers should be addressed to the president so that the necessary permits to travel in Germany can be furnished in sufficient time.

## CORRECTION

**Dr. Upham, Past President of the American Medical Association.**—In an Ohio news item in THE JOURNAL of February 5, page 391, entitled "Dr. Upham Made Emeritus Member of Board," it was erroneously stated that Dr. Upham's successor on the Ohio State Medical Board was a former president of the American Medical Association. The statement, which was misplaced, refers to Dr. Upham himself, who served the American Medical Association not only as president, but, also, for many years, as a member of the board of trustees and of the Judicial Council.

# Marriages

THOMAS C. CLIFFORD, Shipman, Va., to Mrs. Wynanda Bulkley Blake in North Salem, N. Y., September 11.

EDWARD M. KRUSEN JR., Drexel Hill, Pa., to Dr. Ursula M. Leden of Chicago, in Minneapolis, November 13.

WILLIAM STARK to Miss Vivenne R. Rose, both of Washington, D. C., in Baltimore, December 25.

JAMES MATTHEW ANDREW, Columbus, Ohio, to Miss Elaine Laura Flickinger of Akron, September 4.

ROBERT CRAIG SHELBURNE, Rocky Mount, Va., to Miss Louise Hesson at Sweet Briar, September 15.

LEROY LYON HOLT to Miss Anne Elizabeth Owen, both of Birmingham, Ala., September 11.

# Deaths

**George Herbert Ramsey,** Ann Arbor, Mich.; born in Olean, N. Y., in 1891; Columbia University College of Physicians and Surgeons, New York, 1917; later received the doctor of public health degree, Johns Hopkins University School of Hygiene and Public Health, Baltimore; served overseas during World War I; formerly deputy commissioner for the Michigan State Health Department; from 1926 to 1933 on the faculty of Johns Hopkins and later on the faculty of University of Michigan School of Public Health; in 1933 appointed director of the division of communicable diseases for the New York State Department of Health; during his affiliation with Johns Hopkins spent sixteen months with the West African Yellow Fever Commission under the auspices of the International Health Division of the Rockefeller Foundation; served as commissioner of health of Westchester County; member of the American Public Health Association, serving as chairman of the section on epidemiology; past president of the American Epidemiology Society; died in Saranac Lake, N. Y., November 30, aged 57, of tuberculosis and heart disease.

**Frank Edward Simpson** ⊕ Chicago; born in Saco, Maine, Sept. 7, 1868; Northwestern University Medical School, Chicago, 1896; interned at the Cook County Hospital; in 1910 went abroad to study in Vienna and Paris; formerly adjunct professor of dermatology at his alma mater; an Associate Fellow of the American Medical Association; a charter member and one of the early presidents of the American Radium Society; member of the American College of Radiology, Chicago Dermatological Society and the Chicago Roentgen Society; author of "Radium Therapy" and "Radium in Cancer and Other Diseases"; served as attending dermatologist to Cook County Hospital, Henrotin Hospital, Alexian Brothers Hospital, Chicago Policlinic Hospital and the Wesley Memorial Hospital, where he died December 13, aged 79, of cirrhosis of the liver and myasthenia gravis.

**Josiah Charles Trent** ⊕ Durham, N. C.; born in Okmulgee, Okla., Aug. 7, 1914; University of Pennsylvania School of Medicine, Philadelphia, 1938; assistant professor of surgery at Duke University School of Medicine; secretary-treasurer of the Durham-Orange County Medical Society; certified by the National Board of Medical Examiners; member of the American Trudeau Society and the American Association of the History of Medicine; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; in charge of thoracic surgery at Duke Hospital, where he died December 10, aged 34, of lymphosarcoma.

**Lee Campbell Adcock,** Fairfax, Va.; Jefferson Medical College of Philadelphia, 1903; served during World War I; for many years senior medical officer with the Civil Service Commission; died in the Arlington (Va.) Hospital December 3, aged 70, of rupture of the aorta.

**Elvira Dudley Dean Abell,** Madison, N. J.; Cornell University Medical College, New York, 1911; past president of the New Jersey Tuberculosis League; served on the staffs of Memorial and All Souls hospitals in Morristown and the Overlook Hospital in Summit; vice president of the board of managers of the North Jersey Training School for Girls at Totowa; first woman member of the board of directors of Shonghum Mountain Sanatorium in Morristown; died December 8, aged 63, of cerebral hemorrhage.

**George Gabriel Armstrong,** Portsmouth, Va.; University of the City of New York Medical Department, 1891; member of the American Psychiatric Association; for many years associated with the Connecticut State Hospital in Middletown; died in a local hospital November 22, aged 79.

**Conrad Stolzenbach Baker** ⊕ Willimantic, Conn.; Yale University School of Medicine, New Haven, 1934; specialist certified by the American Board of Anesthesiology, Inc.; certified by the National Board of Medical Examiners; served during World War II; died November 13, aged 39.

**Goodman Bare,** Anderson, S. C.; Emory University School of Medicine, Atlanta, 1920; member of the American Medical Association; served as county health officer; died October 1, aged 54, of coronary thrombosis.

**Daniel Clarke Brennan** ⊕ Akron, Ohio; Harvard Medical School, Boston, 1912; past president of the Summit County Medical Society; served on the staff of St. Thomas Hospital, where he died November 28, aged 64, of coronary occlusion and diabetes mellitus.

**Thaddeus Constantine Cooper** ⊕ Ogden, Iowa; Northwestern University Medical School, Chicago, 1912; died November 11, aged 69.

**Robert Henry Cowley,** Berea, Ky.; Western Reserve University Medical Department, Cleveland, 1901; specialist certified by the American Board of Otolaryngology; for many years affiliated with Berea College Hospital, where he died November 20, aged 77, of coronary heart disease.

**Albert Elmer Cross** ⊕ Worcester, Mass.; Boston University School of Medicine, 1900; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology and the New England Ophthalmological Society; formerly member of the school committee; served in an advisory capacity to the local draft board during World War I; member of the board of governors of the Hahnemann Hospital; died in Bennettsville, S. C., November 6, aged 76, of coronary occlusion.

**Charles James Dean,** Portland, Ore.; Chicago College of Medicine and Surgery, 1909; died in the Providence Hospital November 22, aged 64, of arteriosclerotic cardiovascular renal disease.

**Eugene G. Fendley,** Leslie, Ark. (licensed in Arkansas in 1903); member of the American Medical Association; died November 1, aged 66, of heart disease.

**Robert Leslie Ferguson** ⊕ Arkansas City, Kan.; Kansas City (Mo.) Medical College, 1903; died November 5, aged 74, of cirrhosis of the liver.

**George Ray French,** Andover, Ohio; Western Reserve University Medical Department, Cleveland, 1896; member of the American Medical Association; past president of the Geauga County Medical Society; died November 17, aged 75, of coronary thrombosis.

**Charles Albert George,** Springfield, Mo.; Washington University School of Medicine, St. Louis, 1903; member of the American Medical Association; formerly county coroner and city health commissioner; died in St. John's Hospital November 19, aged 67, of cerebral arteriosclerosis.

**George Benjamin Gilmore** ⊕ Colorado Springs, Colo.; Northwestern University Medical School, Chicago, 1903; formerly secretary-treasurer of the El Paso County Medical Society; formerly city health officer; affiliated with the Glockner-Penrose Hospital, St. Francis Hospital and Sanitarium and Memorial Hospital, where he died November 28, aged 67, of nephritis.

**Eustace Thomas Goff** ⊕ Parkersburg, W. Va.; University College of Medicine, Richmond, 1913; member of the American College of Chest Physicians; died November 22, aged 62, of heart disease.

**Julian De Voine Guyot,** Jefferson City, Mo.; Jefferson Medical College of Philadelphia, 1906; member of the American Medical Association; died November 3, aged 64, of pneumonia.

**Merit Donald Haag** ⊕ Toledo, Ohio; University of Michigan Medical School, Ann Arbor, 1918; specialist certified by the American Board of Obstetrics and Gynecology; member of the Central Association of Obstetricians and Gynecologists; fellow of the American College of Surgeons; affiliated with Lucas County and Toledo hospitals; died suddenly in Dunedin, Fla., January 6, aged 56, of cerebral hemorrhage and hypertension.

**William Scott Hartford,** Champaign, Ill.; Hering Medical College, Chicago, 1906; served during World Wars I and II; died in Glendale, Calif., November 6, aged 64.

**James Clarke Healy,** Boston; Tufts College Medical School, Boston, 1927; member of the American Medical Association; assistant professor of pharmacology at his alma mater; affiliated with the Boston City Hospital; died November 19, aged 46, of pulmonary tuberculosis.

**William H. Hendricks,** Tifton, Ga.; St. Louis College of Physicians and Surgeons, 1897; member of the American Medical Association; an officer during World War I; served as mayor of Tifton, and as senator and representative from Tift County; killed in a traffic accident November 15, aged 75.

**John Martin Hogan** ⊕ Oshkosh, Wis.; Rush Medical College, Chicago, 1902; formerly medical director of the Wisconsin National Life Insurance Company; on the staffs of Mercy, St. Mary's and Alexian Brothers' hospitals; one of the founders of the Oshkosh Clinic; died November 19, aged 72, of coronary disease.

**William Clyde Hogan** ⊕ Bradford, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1902; fellow of the American College of Surgeons; member of the Association of Military Surgeons of the United States; served during World War I; on the staff of Bradford Hospital, where he died November 20, aged 74, of cerebral thrombosis with paralysis.

**Albert Roy Hogg,** Lexington, Ga.; University of Georgia Medical Department, Augusta, 1905; died November 23, aged 67.

**Charles Edward Horner,** Williamsburg, Ky.; Eclectic Medical Institute, Cincinnati, 1907; died recently, aged 66.

**Lawson Udell Hurlburt,** Norwood, N. Y.; University of the City of New York Medical Department, New York, 1890; member of the American Medical Association; died November 17, aged 87, of arteriosclerotic heart disease.

**William Bernard Johnston,** Reno, Nev.; Johns Hopkins University School of Medicine, Baltimore, 1901; died November 19, aged 72, of coronary occlusion.

**Edward Winslow Jones** ⊕ Pasadena, Calif.; University of California Medical School, San Francisco, 1930; formerly an officer in the regular navy; died in November, aged 48.

**William Edward Kelly** ⊕ Middletown, N. Y.; Hahnemann Medical College and Hospital of Philadelphia, 1904; specialist certified by the American Board of Pathology, Inc.; member of the American Psychiatric Association and the American Society of Clinical Pathologists; affiliated with the Goshen (N. Y.) Hospital and St. Francis Hospital in Port Jervis; for many years pathologist at the Middletown State Homeopathic Hospital, where he died November 24, aged 71, of cerebral hemorrhage.

**Samuel Markle Kirkwood,** Batavia, N. Y.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1892; died in Genesee Memorial Hospital November 23, aged 83, of cerebral hemorrhage.

**Inez Lapsley,** McAfee, Ky.; Laura Memorial Woman's Medical College, Cincinnati, 1901; fellow of the American College of Surgeons; served on the staff of Christ Hospital in Cincinnati; died November 19, aged 74, of heart disease.

**David Henry Lawrence Jr.** ⊕ Denver; University of Colorado School of Medicine, Denver, 1932; assistant professor of surgery at his alma mater; certified by the National Board of Medical Examiners; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; affiliated with Denver General, Colorado General, St. Luke's, Children's, Mercy and Presbyterian hospitals; died in November, aged 41.

**George Donald Livingston,** Detroit; Wayne University College of Medicine, Detroit, 1938; member of the American Medical Association; served during World War II; affiliated with Grace and St. Mary's hospitals; died November 14, aged 35, of coronary thrombosis.

**Irving Bigley Love** ⊕ Milwaukee; Marquette University School of Medicine, Milwaukee, 1923; school physician for the city health department for many years; on the staff of St. Mary's Hospital; died in St. Mary's Hospital, Madison, November 23, aged 52, of cerebral hemorrhage.

**William DeVoe Lyman** ⊕ Grand Rapids, Mich.; Grand Rapids Medical College, 1906; fellow of the American College of Surgeons; served during World War I; affiliated with St. Mary's and Blodgett Memorial hospitals; died November 21, aged 72, of cerebral hemorrhage.

**Franklin Pierce Lynch,** New York; University of the City of New York Medical Department, 1891; for many years a medical missionary in the Belgian Congo; died in the Roosevelt Hospital November 20, aged 89.

**Howard N. Lyon,** Chicago; the Hahnemann Medical College and Hospital, Chicago, 1888; died in Morris November 29, aged 81, of cerebral arteriosclerosis and arteriosclerotic heart disease.

**James McGehee McAnally** ⊕ Reidsville, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1927; past president of the Rockingham County Medical Society and the Eighth District Medical Society; on the staff of the Memorial Hospital; surgeon for the Southern Railway; died in Baptist Hospital, Winston-Salem, N. C., recently, aged 46, of coronary thrombosis.

**Wheeler Scott McCall,** St. Louis; Barnes Medical College, St. Louis, 1910; served during World Wars I and II; died in the Veterans Administration Hospital, Jefferson Barracks, Mo., November 20, aged 61, of hypertension and myocardial infarction.

**Fenton Elmer MacCallum,** Pulaski, N. Y.; Baltimore Medical College, 1900; health officer of the town of Richland; member of the American Medical Association; died October 28, aged 72, of coronary thrombosis.

**Luther Love McDougal Sr.,** Booneville, Miss.; University of Louisville (Ky.) Medical Department, 1907; member of the American Medical Association; past president of the Northeast Mississippi Thirteen County Medical Society; formerly secretary of the Prentiss County Medical Society; for many years member of the state board of health; formerly superintendent of the Mississippi State Hospital, Whitfield; died in the North East Mississippi Hospital, November 19, aged 70.

**Robert Louis McGee** ⊕ Raleigh, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1932; specialist certified by the American Board of Surgery; fellow of the American College of Surgeons; affiliated with Rex Hospital, where he died November 11, aged 41, of polioencephalomyelitis.

**Charles A. J. McKenna,** Scarsdale, N. Y.; Fordham University School of Medicine, New York, 1921; served during World War I; medical examiner for the New York State Department of Labor; formerly affiliated with the Manhattan Eye, Ear and Throat Hospital and Misericordia Hospital in New York; died November 23, aged 52.

**Mack Laughlin McKinnon** ⊕ Lauderdale, Miss.; University of Tennessee Medical Department, Nashville, 1910; died in Rush Memorial Hospital, Meridian, November 20, aged 63, of a skull fracture received in an automobile accident.

**Harry Gray McNamee Jr.,** Memphis, Tenn.; University of Tennessee College of Medicine, Memphis, 1937; member of the American Medical Association; formerly on the faculty of his alma mater; served during World War II; died in Kennedy Hospital, November 7, aged 36, of glioblastoma.

**Alexander McRobbie,** Swampscott, Mass.; University of Aberdeen Faculty of Medicine, Scotland, 1904; died November 21, aged 73, of coronary occlusion.

**John Henry Miller Madden,** Columbia, S. C.; Johns Hopkins University School of Medicine, Baltimore, 1939; member of the American Medical Association; secretary treasurer of the Second District Medical Society; served overseas during World War II; affiliated with Columbia Hospital, Providence Hospital and the Baptist Hospital, where he died November 21, aged 35.

**Frederick Fletcher Malony,** Dundee, N. Y.; Yale University School of Medicine, New Haven, 1901; member of the American Medical Association; served as county coroner; affiliated with the Soldiers and Sailors Memorial Hospital in Penn Yan and the Geneva (N. Y.) Hospital; died November 29, aged 73.

**Joseph Mandelberg,** Brooklyn; Cornell University Medical College, New York, 1919; served with the Veterans Administration; died November 12, aged 55, of coronary thrombosis.

**George Francis Mangone** ⊕ Union City, N. J.; University and Bellevue Hospital Medical College, New York, 1925; health officer; affiliated with the French Hospital in New York and Christ Hospital in Jersey City, where he died November 20, aged 47, of congestive heart failure and coronary sclerosis.

**Otis W. Martin** ⊕ Ralston, Neb.; University of Nebraska College of Medicine, Omaha, 1917; for many years associated with the Union Pacific Railway; served during World War I; died November 7, aged 57, of carcinoma of the kidney with metastases.

**Stonewall Jackson Martin,** Bowling Green, Ky.; University of Louisville (Ky.) Medical Department, 1904; died November 14, aged 82, of pneumonia.

**Samuel Abbot Volpert** ⊕ Lake Placid, N. Y.; Syracuse University College of Medicine, 1922; past president of the Essex County Medical Society; on the staff of General Hospital in Saranac Lake and Lake Placid General Hospital; died November 27, aged 49, of coronary thrombosis.

**Justin Miner Waugh** ⊕ Cleveland; Columbia University College of Physicians and Surgeons, New York, 1898; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; served overseas during World War I; affiliated with the Cleveland Clinic; died in Cleveland Clinic Hospital November 24, aged 76, of cerebral hemorrhage.

**Samuel Weinberg** ⊕ Baltimore; College of Physicians and Surgeons, Baltimore, 1901; died November 26, aged 68, of coronary thrombosis.

**Edison Kerl Westhafer,** New Castle, Ind.; Central College of Physicians and Surgeons, Indianapolis, 1905; member of the American Medical Association; served during World War I; formerly associated with the U. S. Public Health Service; died in Henry County Hospital November 9, aged 70, of coronary occlusion.

# Foreign Letters

## LONDON

*(From Our Regular Correspondent)*

Jan. 22, 1949.

### The Working of the National Health Service

In the House of Commons a discussion has taken place on the working of the National Health Service, which was criticized by the opposition and defended by the Government. Sir H. Morris-Jones, a national liberal member, said that a large number of doctors were unhappy about many of the workings of this act; that in large industrial areas they had, on the whole, gained somewhat in remuneration; that in all other areas their incomes had gone down so seriously as to affect the morale and working power of the practitioner; that the whole basis of remuneration should be reconsidered; that there was much to be said for payment for each attendance, with a certain ceiling, whereby the state could make a grant-in-aid; that the basic salary was working very badly, and that the distribution of doctors was infinitely worse than ever. A conservative member asked whether the medical profession was not much overworked, with the consequence that it had insufficient time to give to serious illness. Were the people who really needed them getting the hospital beds?

For the Government Mr. L. J. Edwards, Parliamentary Secretary, Ministry of Health, said that there was no longer any doubt that the Health Service had been welcomed and used by all classes to an extent beyond expectation! In the family practitioner service some 40,000,000 have placed their names on doctors' lists. That is between 95 and 98 per cent of the total population. A 3 per cent margin of error was allowed for. Out of a total of about 21,000 general practitioners 18,165 have come into the scheme. They have written 75,000,000 prescriptions for medicines or appliances since the service began. Out of about 10,000 dentists in general practice 8,988 are now in the scheme. They have treated 2,200,000 patients, and a further 1,200,000 are under treatment at present. It looks as though the initial peak demand for dental services has passed, but the demand is still running at the rate of 130,000 patients a week. Over 2,500,000 persons have had their sight tested, and over 3,000,000 pairs of glasses have been supplied or are on order. It should be borne in mind that all these figures refer to a period of about six months during which the service has existed.

On the question of payments to doctors the Minister said that up to March 31 next they were estimated at $130,000,000, in addition to which there were contributions from the Government for superannuation amounting to $6,400,000. It was agreed with the profession that the mileage payments to rural doctors for 1947 should be increased to $5,200,000, but it is clear that this would not be sufficient to meet their needs, and the Government has agreed to provide a further $2,000,000 a year.

### Annual Meeting of the Association of Surgeons

The annual meeting of the Association of Surgeons of Great Britain and Ireland will be held in Dublin on May 26-28. The discussions arranged are as follows: "Surgical Ritual," to be opened by Sir Hugh Cairns, Sir R. Watson-Jones, Mr. Julian Taylor, Mr. F. Gill and Mr. D. M. Douglas; "The Use and Abuse of Streptomycin," by speakers to be announced later; "The End Results and Treatment of Injuries of Peripheral Nerves," to be opened by Mr. H. J. Seddon; other speakers to be announced later. Fellows and associate fellows are invited to submit the titles and precis of short papers to the honorary secretary by the end of January. Those requiring accommodation in Dublin should apply as soon as possible to Hewett's Travel Agency, Hewett's Corner, D'Olier St., Dublin.

### Freedom of Britain from Epidemic Influenza

This country has been singularly free from epidemic influenza in recent years. In the first quarter of 1948 the deaths from influenza in the great towns reached the lowest figure ever recorded. So far there is no indication this year of any epidemic of influenza in England. But Italy, France and Belgium have been suffering from epidemics of mild type, probably due to the influenza B virus. Two persons arrived in London from Paris on January 5 and showed symptoms suggestive of influenza. It is likely that during the past fortnight there have been numerous similar importations, but there is nothing to suggest that the disease is already spreading. While dissemination of the virus is almost inevitable, the outbreak need not necessarily reach epidemic proportions. The Ministry of Health has issued in the press "the golden rule" that anyone who has a headache, pains in the limbs and fever should go to bed in a room by himself and remain there under medical care until he recovers. Though it is free from influenza in epidemic form, scattered cases continue to occur from time to time throughout the country.

### New Health Records

The vital statistics for 1948 show three new health records. As the National Health Service did not come into force until the middle of the year, credit cannot be claimed for this, as it probably would if the service covered the whole year. The deaths registered in England and Wales during 1948 numbered 470,282, the lowest for eighteen years, in spite of an increase of population amounting to 3,500,000. This represents a record low death rate of 10.8 per thousand of population. There were 266,635 deaths of children under one year of age, giving a rate of 34 per thousand related to live births. This is the first time that the annual rate has fallen below 40, the previous lowest being 41. Stillbirths numbered 18,415, giving a rate of 23.1 per thousand live and stillbirths. This is also the lowest rate ever recorded. The number of live births was 777.648, a reduction of 109,172 from the peak of 886,820 in 1947 but substantially above prewar levels. The rise in the birth rate during and immediately after the war has been pointed out in previous letters to The Journal. It was explained as largely due to the marriage allowances paid to soldiers' wives. This is confirmed by the great fall in the birth rate which followed in the years of peace.

## THE NETHERLANDS

*(From Our Regular Correspondent)*

Amsterdam, Jan. 25, 1949.

### Health Districts for Medical Training and Research at Batavia

Dr. J. W. Tesch, who was assistant of Prof. Dr. J. E. Dinger, director of the Queen Wilhelmina Institute for Hygiene and Bacteriology of the Faculty of Medicine, Batavia, published a fascinating report on "The Hygiene Study Ward Center at Batavia" (Thesis University of Leyde, 1948).

The plan for this study ward was conceived by the late Prof. E. Walch. This outstanding hygienist, himself a pupil of the School of Hygiene at Baltimore, was guided in this plan by the experience in the United States, where, in the neighborhood of various schools of hygiene, a quarter of the town is allocated as a study ward for the students. After his tragic death his idea has materialized under his successor, Professor Dinger, with the aid of the Public Health Service, the Queen Wilhelmina Jubilee Foundation and the Rockefeller Foundation.

The Study Ward was established in the Tanah Tinggi ward of the Senen subdistrict of Weltevreden, a section of Batavia with a population of 25,000.

The staff under the physician in charge consists chiefly of a midwife, a nurse for infants and preschool children, 4 home visitors (investigators) and an instructor of the visitors. The midwife does not attend confinements but collects all possible data regarding pregnancy, confinement and lying-in. She visits the pregnant women, traced by the investigator in their homes and urges them to avail themselves if necessary of expert assistance, which is then given by a midwife of one of the obstetric institutions operating in the ward.

The investigators make regular rounds, each in his own territory, collecting information regarding pregnancy and the hygienic and demographic conditions; keeping a look out for cases of sickness, for pregnant women and for infants found not to have birth certificates, and distributing bottles for the collection of fecal matter and sputum and making blood smears for malaria tests.

The instructor of the investigators calls on the families in which there are cases of sickness and arranges the further epidemiologic research work under the supervision of the physician in charge. The nurse for children makes a house to house call on all the newborn babies and makes propaganda for visits to the hygiene center. In the program of activities one finds as the most important subjects: the census of the population, vital statistics, environmental conditions, individual hygiene and preventive medicine, diet investigations and the epidemiology of typhoid, different forms of dysentery, worm infestations, tuberculosis, diphtheria, malaria, yaws, leprosy, measles, leptospirosis and filariasis.

During four years of work done in the study ward, a new census has been organized comprising a classification of the population according to occupation, economic status, etc., and a new apparatus for the registration of births. The environmental conditions were carefully studied and much attention was given to personal hygiene which, according to the author, will have a prominent place in the future of public health.

Regarding the epidemiology of typhoid, bacillary dysentery and diphtheria, rates were obtained of the frequency of bacillus carriers, contact and immune persons. The supposition that there must be many slight and unrecognized cases of typhoid among the population of the native districts of Batavia is not confirmed by this research, although in the surface water a heavy contamination with fecal bacteria and typhoid bacteria was found. This gives rise to another supposition, namely, that the contact with this surface water, besides spreading real cases, produces subclinical immunizing infections, which lead to an active immunity against typhoid.

Bacillary dysentery again showed itself to be one of the most important tropical diseases; relatively many carriers were found among persons chosen at random and among persons who had come in contact with dysentery patients. The results of the postmortem examinations are surprising indeed, as in 14 per cent of persons who had died of all kinds of diseases dysentery bacilli were traced. The morbidity and the mortality of bacillary dysentery among the group up to 4 years of age appeared to be thirty to forty times as great as among the older children and the adults.

The author obtained the general impression that in tropical surroundings a more rapid immunization against diphtheria takes place. The native school children of the study ward in the age group 5 to 6 years already showed a high incidence of Schick-negative reactions.

It may be expected that the investigations and survey described by Dr. Tesch are to be continued as soon as conditions will permit. The work in the study ward is of high educational and didactic value. At the same time it opens a rich field of epidemiologic research and stimulates the authorities who are responsible for the sanitary conditions in the district.

## MADRID

*(From Our Regular Correspondent)*

Feb. 10, 1949.

### Thrombophlebitis

At the annual meeting of the Sociedad Española de Cardiología, Nov. 27, 1948, at the Asociación de Médicos de Madrid, Dr. Fernando Martorell of Barcelona read an excellent article on "Phlebothrombosis and Thrombophlebitis of the Limbs." This article was based on careful observation by the speaker of 971 cases. Two hundred and twenty-two were in the acute phase, whereas 750 were seen in the phase of the sequels. From the etiologic point of view, puerperal thrombophlebitis is the most frequent. Primary thrombophlebitis is second in frequency. Pulmonary embolism occurred in 140 patients. It ushered in the clinical symptoms of thrombophlebitis in 70 cases and appeared after the clinical symptoms of thrombophlebitis in 66 cases. In the group of patients with sequels, 222 had edema, 172 induration and 341 ulcers. The speaker reviewed Oschner's and Bakey's theories on phlebothrombosis and thrombophlebitis. The differentiation is useful with respect to certain aspects of the disease, but it is advisable to retain the name thrombophlebitis in its generic sense, to prevent possible confusion. In the therapeutic field, it is obvious that immobilization of the thrombophlebitic limb is harmful, whereas in some cases administration of spasmolytic drugs and anesthesia of the sympatheticus are of value. Concerning the value of anticoagulants, the speaker emphasized that heparin gives good results whereas dicumarol® is dangerous and of less efficacy than heparin. However, dicumarol® should be resorted to in patients in whom heparinization is impossible and in those who had heparinization with a consequent favorable course of the disease and in whom prolongation of the anticoagulant effect is indicated. Operation is indicated only on thrombosed varicose veins, on thrombosis causing embolism and on septic thrombophlebitis. Active mobilization of the limbs is indicated as the best prophylactic measure. In the course of the sequels the postphlebitic ulcer is a frequent and painful complication. Lumbar ganglionectomy followed by extensive removal of the ulcer and application, with suture, of a free graft constitutes the recommended treatment. The graft is obtained with Padget's dermatome. Drs. C. Jiménez Díaz, of Madrid, the president of the Sociedad Española de Cardiología; Rodriguez Arias, of Barcelona, and A. Buylla, Varela and F. Vega Diaz, all from Madrid, took part in the discussion of Dr. Mortorell's article.

### Appoint Professor of Histology

Dr. J. L. Arteta was recently appointed professor of histology and pathologic anatomy of the Faculty of Medicine of Santiago de Compostela. His appointment was made by unanimous vote of all the members of the faculty. Dr. Arteta belongs to the school of Cajal. He was a pupil of Dr. J. F. Tello. He has held the following positions: assistant professor of histology and pathologic anatomy of the Faculty of Medicine of Madrid from 1940 to 1944; head of department of autopsies of the Hospital General of the Department of Pathologic Anatomy, of which Dr. M. Perez Lista is the director, and, most recently, professor of pathologic anatomy of the Escuela Nacional de Tisiología. Dr. Arteta is a permanent collaborator of the Instituto de Patología Médica, of which Professor Dr. G. Marañón is the director. He has published several articles in collaboration with Dr. Marañón. His articles on the nervous system are important, especially on the following subjects: changes of microglias on different experimental conditions; pathologic anatomy of the pellagrous tongue, and new technics of impregnation of the nervous system. He developed a rapid technic of biopsy, which is a modification of Terry's technic.

# Correspondence

## DIABETES

*To the Editor:* An unfortunate error appeared in THE JOURNAL of January 1 which tended to reflect on the validity of my reported observations on vascular damage in diabetes mellitus. Dr. Elliott P. Joslin in his article, "Furtherance of Treatment of Diabetes Mellitus" (page 1) cited my study of 200 patients but inadvertently referred to the number as 20!

In critically evaluating these observations, Dr. Joslin unfortunately used as his source an abstract of a preliminary report rather than the more detailed paper which appeared in THE JOURNAL on Aug. 16, 1947. With respect to the manner in which the data were obtained, a point which seems to have disturbed Dr. Joslin, readers of THE JOURNAL will recall that "the patients were selected from the Metabolism Clinic of the Mount Sinai Hospital and private practice on the basis of detailed medical records dating from the onset of diabetes, with emphasis on regular ophthalmoscopic examinations, determinations of blood pressure and complete urinalyses."

A distinguished member of Dr. Joslin's own clinic, Dr. Priscilla White, makes an observation almost identical with mine, noting that "vascular disease occurred in 93 per cent of 220 juveniles surviving twenty or more years of diabetes." This is not materially different from my report of 100 per cent vascular damage in twenty-five years.

In fact, Dr. Joslin himself states in his JOURNAL article of January 1 that "more than 60 per cent of my diabetic patients die between the fifth and twentieth year of their diabetes." It seems to me that he and his associate, Dr. White, have proved my case.

No one regrets the existence of a pessimistic outlook on diabetes more than I, but no useful purpose can be served by denying the evidence which has been demonstrated. On Oct. 5, 1947 at the Seminar on Degenerative Lesions of Metabolism sponsored by the National Institute of Health, the chairman, Dr. Joseph H. Barach, opened the session by stating "So far, almost everyone who has discussed this topic seems to have corroborated Dolger's observations and faced the grim facts. Out of this, there will finally come a revaluation of our knowledge on the subject, and we will be better off for it."

HENRY DOLGER, M.D., New York.

NOTE.—The letter was referred to Dr. Joslin, who replies:

*To the Editor:*—No one in the world probably appreciated the significance of Dr. Dolger's work on the prevalence of vascular damage in diabetes more than I. Most unfortunately I missed that error in the proof and the figure "20" instead of the correct figure of "200" cases went into the published text, although my duplicate of the text shows my paper had the correct figure.

It may be of interest to the readers that Dr. Dolger's comment was a challenge to us all, and now we have 5 of our own cases, 1 case from the University of Iowa at Iowa City and another from the Mayo Clinic, in which the patients have lived not twenty years, but twenty-five years with diabetes and show no sign of degenerative disease in the eyes, in the heart, in the kidneys or in the aorta (including lateral roentgenograms), in the pelvic arteries and vessels of the legs.

Dr. Dolger's work was most stimulating, and when a sufficient number of these exceptional cases are collected, it will be of great value to trace the treatment they have followed during their quarter century or more of diabetes.

ELLIOTT P. JOSLIN, M.D., Boston.

## FLUORESCEIN

*To the Editor:*—I was most interested in the work of Menaker and Parker, "Fluorescein: An Adjunct in Surgery of Extrahepatic Biliary Passages," in THE JOURNAL of Dec. 4, 1948. Dr. C. J. Sutro and myself did the same thing many years back. This work was collateral to the use of filtered ultraviolet radiation in orthopedic pathology. The references to our publications are these:

1. Visualization of the Biliary System by Fluorescence: *Results of Animal Studies Following Intravenous Injection of Mercurochrome-220 Soluble or Direct Injection of the Dye Into the Gall Bladder, J. A. M. A.* **99:** 2024 (Dec. 10) 1932.

2. Examination of Tubular Organs and Arterial Systems of Rabbits by Filtered Ultraviolet Radiation, *Arch. Surg.* **28:** 867-873 (May) 1934. Photographs of the gallbladder, the extrahepatic biliary ducts and duodenum before and after exposure to filtered ultraviolet radiation were shown.

3. Practical and Experimental Uses of Fluorescein in Medicine, *Arch. Phys. Therapy,* **16:** 71-73, 1935.

The late Dr. Philip Grausman, attending surgeon of the Hospital for Joint Diseases, injected at our request 20 cc. of a 0.06 per cent watery solution of acriflavine into the gallbladder of each of 2 patients before the gallbladder was removed. The dye fluoresced a golden yellow under filtered ultraviolet radiation in the darkened room. The common duct and the second portion of the duodenum were outlined well. Dr. Grausman supplied us with fluorescein powder for further investigation, especially the intravenous injection of a fluorescein solution. (Fluorescein is the mother substance of merbromin ["mercurochrome"]). This was not done because of the press of other work.

It is to Lange's credit that he demonstrated the value of fluorescein in the study of circulatory adequacy. The good work of Menaker and Parker is equally applicable in the surgery of other tubular structures.

MICHAEL BURMAN, M.D., New York.

## VAGOTOMY FOR PEPTIC ULCER

*To the Editor:*—The report of Drs. Paulson and Gladsden (THE JOURNAL, January 15, page 151) involves a problem of interest to those surgeons performing vagotomy for the therapy of peptic ulcer and to other scientists who attempt to explain the results of this operation. Paulson and Gladsden report that the pyloric sphincter as well as the remainder of the stomach becomes more relaxed after vagotomy and that the delayed gastric evacuation resulting from this operation cannot be due to pylorospasm. This report emphasizes the fact that the physiology of the sphincter is of clinical as well as academic interest.

Many investigators, employing rather indirect experimental methods, have concluded that the pyloric sphincter reacts in a manner opposite to the remainder of the stomach. Paulson and Gladsden emphasize that if this were true, vagotomy, which depresses gastric tone and motility, should stimulate the sphincter and retard gastric evacuation by producing pylorospasm.

Since 1937 our laboratory has employed a variety of rather direct methods of studying the sphincter and has uniformly observed that in regard to its motor activity, the gastroduodenal region (antrum, sphincter and bulb) behaves as a unit. Contrary to older reports, all three regions are similarly inhibited by the presence of fats, fatty acids or hydrochloric acid in the upper intestine or by pain and other noxious impulses or by drugs which block parasympathetic nerves. We also demonstrated that the delayed gastric emptying associated with these factors results from a decrease in antral pumping activity and occurs in spite of a relaxed pyloric sphincter.

Thus, the fact that vagotomy delays gastric evacuation and also relaxes the sphincter as Paulson and Gladsden have demonstrated by an acceptable method (gastroscopic observation) is not "surprising." Actually, it is in accord with the newer knowledge obtained by other critical technics and it confirms the modern evidence that the behavior of the sphincter is similar to and not contrary to that of the adjacent portions of the digestive tract.

J. P. QUIGLEY, PH.D.
DANIEL A. BRODY, M.D.
The University of Tennessee.

# Medical Examinations and Licensure

## COMING EXAMINATIONS AND MEETINGS

### NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various Centers. June 20-22, Sept. 12-14. *Part II.* April 25-26. Exec. Sec., Mr. E. S. Elwood, 225 S. 15th St., Philadelphia 2.

### EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY, INC. *Written.* Various Centers. July 15: Final date for filing application is April 15. *Oral.* April 10-14 and Oct. 16-20. Sec., Dr. Curtiss B. Hickcox, 745 Fifth Ave., New York 27.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral.* New York City, April 1-3. Sec., Dr. George M. Lewis, 66 East 66th Street, New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* New York City, March 23-25. Philadelphia, June 1-3. *Written.* Oct. 17. Final date for filing application is May 1. Asst. Sec.-Treas., Dr. W. A. Werrell, 1 Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* Chicago, June 1949. Sec., Dr. W. J. German, 310 Cedar Street, New Haven, Conn.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY, INC.: *Oral.* Chicago, May 8-14. Final date for filing application is April 1. Sec., Dr. Paul Titus, 1015 Highland Building, Pittsburgh 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral.* San Francisco, March 21-24; New York, June 11-15; St. Louis, Oct. 15-19; Boston, Dec. Sec., Dr. S. J. Beach, 56 Ivie Rd., Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY. *Part I.* Various Centers. *Part II.* New York City, Jan. 1950. Sec., Dr. Harold A. Sofield, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, May 11-14; Chicago, Oct. 4-7. Sec., Dr. D. M. Lierle, University Hospital, Iowa City.

AMERICAN BOARD OF PATHOLOGY: Boston, April. Final date for filing application is March 1. Sec., Dr. Robert A. Moore, 507 S. Euclid Ave., St. Louis 10, Mo.

AMERICAN BOARD OF PEDIATRICS: *Oral.* Baltimore, May 7-9. Exec. Sec., Dr. John McK. Mitchell, 6 Cushman Rd., Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE: Atlantic City, June 4-5. Final date for filing application is March 1. Sec., Dr. R. L. Bennett, 30 N. Michigan Blvd., Chicago.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in June and November of each year in the home town of applicants. Sec., Treas., Dr. Louis T. Byars, 400 Metropolitan Bldg., St. Louis, Mo.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY, INC. December, New York City. Sec., Dr. F. J. Braceland, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY. Atlantic City, June 2-4. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S.W., Rochester, Minn.

AMERICAN BOARD OF SURGERY. *Written.* Various Centers, March and October. Final date for filing application for October examination is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: Feb. 1950. Sec., Dr. Harry Culver, 7935 Sunnyside Road, Minneapolis 18, Minn.

### BOARDS OF MEDICAL EXAMINERS

ALABAMA: *Examination.* Montgomery, June 28-30. Sec., Dr. D. G. Gill, 519 Dexter Ave., Montgomery.

ALASKA: * Juneau, March 1. Sec.-Treas., Dr. W. M. Whitehead, Box 140, Juneau.

ARKANSAS: * Little Rock, June 9-10. Sec., Dr. L. J. Kosminsky, Texarkana. *Eclectic.* Little Rock, June 9-10. Sec., Dr. C. H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Examination,* Los Angeles, Feb. 28-March 3. Sec., Dr. Frederick N. Scatena, 1020 N St., Sacramento.

COLORADO: * *Endorsement,* Denver., April 5. *Written,* Denver, June 20-22. Sec., Dr. W. W. King, 831 Republic Bldg., Denver 2.

CONNECTICUT: * Hartford, March 8-9. Secretary to the Board, Dr. Creighton Barker, 258 Church Street, New Haven.

DELAWARE: Dover, July 12-14. Sec., Dr. J. S. McDaniel, 229 South State St., Dover.

DISTRICT OF COLUMBIA: * *Reciprocity,* Washington, March 14. *Written,* Washington, May 9-10. Sec., Dr. George C. Ruhland, 4130 Municipal Bldg., Washington.

FLORIDA: * *Examination,* Jacksonville, June 26-28. Sec., Dr. Frank D. Gray, 12 N. Rosalind Ave., Orlando.

GEORGIA: *Examination.* June, Atlanta and Augusta. *Reciprocity.* Atlanta, June. Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

GUAM: *Endorsement.* Agana, Last Friday of each month. Sec., Capt. C. K. Youngkin, Dept. of Public Health, Guam, % F.P.O. San Francisco, Calif.

ILLINOIS: Chicago, April 12-14. Supt. of Registration, Mr. Fred W. Ruegg, Capitol Bldg., Springfield.

INDIANA: *Examination.* Indianapolis, June. Sec., Board of Medical Registration and Examination, Dr. Paul R. Tindall, 416 K. of P. Bldg., Indianapolis.

IOWA: * *Examination.* Iowa City, June 13-15. Sec., Dr. M. A. Royal, 506 Fleming Bldg., Des Moines.

KANSAS: Kansas City, June 1-2. Sec., J. F. Hassig, 905 North 7th St., Kansas City, Kans.

KENTUCKY: *Examination.* Louisville, June 15-17. Sec., Dr. Bruce Underwood, 620 S. 3rd St., Louisville 2.

MAINE: Portland, March 8-9. Sec., Dr. Adam P. Leighton, 192 State Street, Portland.

MARYLAND: *Examination.* Baltimore, June 21-24. Sec., Dr. Lewis P. Gundry, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 14-15. Sec., Dr. John A. Evans, 612 West 40th St., Baltimore.

MASSACHUSETTS: *Examination.* Boston, March 8-11. Sec., Dr. George L. Schadt, 413 E. State House, Boston.

MINNESOTA: * Minneapolis, April 19-21. Sec., Dr. J. F. Du Bois, 230 Lowry Medical Arts Bldg., St. Paul 2.

MISSISSIPPI: Jackson, June. Asst. Sec., Dr. R. N. Whitfield, State Board of Health, Jackson.

MISSOURI: *Examination.* St. Louis, May 30-31 and June 8-10. Exec. Sec., Mr. John A. Hailey, Box 4, Jefferson City.

MONTANA: Helena, April 4-6. Sec., Dr. O. G. Klein, First National Bank Building, Helena.

NEBRASKA: * *Examination.* Omaha, June. Dir., Bureau of Examining Boards, Mr. Oscar F. Humble, 1009 State Capitol Building, Lincoln 9.

NEVADA: Carson City, May 2. Sec., Dr. G. H. Ross, 112 N. Curry Street, Carson City.

NEW HAMPSHIRE: Concord, March 10-11. Sec., Board of Registration in Medicine, Dr. John S. Wheeler, 107 State House, Concord.

NEW JERSEY: *Examination.* Trenton, June 21-24. Sec., Dr. E. H Hallinger, 28 West State Street, Trenton 8.

NEW MEXICO: * Santa Fe, April 11-12. Sec., Dr. V. E. Berchtold, 141 Palace Ave., Santa Fe.

NORTH CAROLINA: *Endorsement.* Pinehurst, May 9. *Examination.* Raleigh, June 23-25. Sec., Dr. Ivan Procter, 226 Hillsboro St., Raleigh.

OHIO: *Endorsement.* Columbus, April 5. *Written.* Columbus, June. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OREGON: * *Endorsement.* Portland, April 29-30. *Examination.* Portland, July. Exec. Sec., Mr. Howard I. Bobbitt, 609 Failing Bldg., Portland.

PENNSYLVANIA: *Examination.* Philadelphia and Pittsburgh, July. Acting Sec., Mrs. B. G. Steiner, 351 Education Bldg., Harrisburg.

PUERTO RICO: *Examination.* Santurce, March 1. Sec., Mr. Luis Cueto Coll, Box 3717, Santurce.

RHODE ISLAND: * *Examination.* Providence, April 7-8. Chief, Mr. Thomas B. Casey, 366 State Office Bldg., Providence.

SOUTH CAROLINA: *Examination.* Columbia, June 27-29. *Endorsement.* Columbia, March 7, April 4, May 2, June 27-28, Aug. 1, Sept. 5 and Oct. 3. Sec., Dr. N. B. Heyward, 1329 Blanding St., Columbia.

SOUTH DAKOTA: * *Examination.* Pierre, July 19. Sec., Dr. G. J. Van Heuvelen, Capitol Bldg., Pierre.

TENNESSEE: * *Examination.* Memphis, March 23-24. Sec., Dr. H. W. Qualls, 1635 Exchange Bldg., Memphis.

TEXAS: *Examination.* Austin, June 16-18. Sec., Dr. M. H. Crabb. 209 Medical Arts Bldg., Fort Worth 2.

UTAH: *Examination.* Salt Lake City, July. Sec., Dept. of Registration, Miss Rena B. Loomis, 324 State Capitol Bldg., Salt Lake City.

VIRGINIA: *Examination.* Richmond, June 17-18. *Reciprocity.* Richmond. June 16. Dr. K. D. Graves, 631 First St., S.W., Roanoke.

WEST VIRGINIA: Charleston, April 7-9. Sec., Dr. N. H. Dyer, State Capitol, Charleston 5.

WISCONSIN: * *Examination.* Milwaukee, June 28-30. Sec., Dr. C. A. Dawson, Tremont Bldg., River Falls.

WYOMING: Cheyenne, June 6. Sec., Dr. Franklin D. Yoder, Capitol Bldg., Cheyenne.

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* Basic Science Certificate required.

### BOARDS OF EXAMINERS IN THE BASIC SCIENCES

ALASKA: Juneau, Feb. 21-26. Sec.-Treas., Dr. C. Earl Albrecht, Box 1931, Juneau.

ARIZONA: *Examination.* Tucson, March 15. Sec., Dr. Francis A. Roy, Science Hall, University of Arizona, Tucson.

ARKANSAS: *Examination.* Little Rock, May 3. Sec., Mr. L. E. Gebauer, 1002 Donaghey Bldg., Little Rock.

[illegible] ar. 2-3 and June 1-2. Sec., Dr.
Es [illegible] er.
[illegible] Washington, April 18-19. Sec.,
Dr [illegible] Bldg., East, Washington.
[illegible] une 11. Sec., Mr. M. W. Emmel.
Ur [illegible]

MICHIGAN: *Examination.* Detroit and Ann Arbor, May 13-14. Sec., Miss Eloise LeBeau, 101 N. Walnut St., Lansing 15.

MINNESOTA: *Examination.* April 4, June and Oct. Sec.-Treas., Dr. Raymond N. Bieter, 105 Millard Hall, Univ. of Minnesota, Minneapolis.

NEW MEXICO: *Examination.* Santa Fe, March 20. Sec., Miss Marguerite Kilkenny, 110 W. Houghton St., Santa Fe.

OKLAHOMA: April 15. Sec., Dr. Clinton Gallaher, 813 Braniff Bldg., Oklahoma City.

OREGON: Portland, March 5, June 18, Sept. 3 and Dec. 3. Sec., Mr. Charles D. Byrne, State Board of Higher Education, Eugene.

SOUTH DAKOTA: Vermillion, June 3-4. Dr. G. M. Evans, 310 E. 15th St., Yankton.

TENNESSEE: Memphis, March 21-22 and July 8-9. Sec., Dr. O. W. Hyman, 874 Union Ave., Memphis 3.

WISCONSIN: Madison, April 2. Milwaukee, June 4. Sec., Prof. W. H. Barber, Ripon College, Ripon.

# Current Medical Literature

## AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1938 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

### American Journal of Medical Sciences, Philadelphia

**216:**241-360 (Sept.) 1948

Effect of Oral Caronamide [Carinamide] on Plasma Penicillin Levels Following Large Intramuscular Doses of Penicillin. A. O. Seeler, H. S. Collins and M. Finland.—p. 241.
*Plasma Penicillin Levels After Oral Penicillin With and Without Oral Caronamide. H. S. Collins, A. O. Seeler and M. Finland.—p. 248.
*Poliomyelitis in Families Attacked by the Disease: I. Distribution of Virus in Stool and Oropharynx of Members in Households. H. A. Wenner and W. A. Tanner.—p. 258.
Maintenance of Patients with Tropical Sprue by Means of Massive Doses of Synthetic 5-Methyl Uracil (Thymine). G. G. Lopez, F. Milanes, R. L. Toca and others.—p. 270.
Healing of Resistant Skin Ulcers After Treatment with Nitrogen Mustard: Preliminary Note. J. Aleksandrowicz.—p. 275.
Therapy of Acute Fluoride Poisoning. J. H. Peters.—p. 278.
*One Hundred Cases of Miliary and Meningeal Tuberculosis Treated with Streptomycin. P. A. Bunn.—p. 286.
Evaluation of Thymol Turbidity Test. R. G. Ernst and L. B. Dotti.—p. 316.
Sickle Cell Trait. Incidence and Influence in Pregnant Colored Women. P. K. Switzer and H. H. Fouché.—p. 330.
Hamartomas of Lung and So-Called "Pulmonary Adenomatosis." M. A. Simon.—p. 333
Tropical Environment and Communicable Disease. G. E. Gordon and D. L. Augustine.—p. 343.

**Carinamide and Plasma Penicillin Levels.**—Studies on the effect of carinamide on the blood levels obtained during oral administration of penicillin are the subject of this report by Collins and his associates. They found that penicillin when administered orally alone in doses of 100,000 units every four hours could not be relied on to maintain significant concentrations of the antibiotic in the plasma in persons under 60 years of age. Penicillin levels of 0.03 unit per cubic centimeter were usually maintained in persons over 60 years old on the same dosage. Carinamide in oral doses of 4 Gm. every four hours in persons under 60 and in doses of 3 Gm. every four hours in those over 60 enhanced and prolonged the levels from orally administered penicillin. In patients older than 60 years with slightly elevated blood nonprotein nitrogen levels the enhancing effect of carinamide persisted for at least twenty-eight hours after the carinamide was discontinued. This effect was associated with persistence of significant carinamide concentrations in the blood of these patients. The enhancing effect of carinamide on plasma penicillin levels when the penicillin is given orally seemed to be less than was the case when penicillin was given intramuscularly. The effects of carinamide during oral administration of penicillin appear to be more erratic and the individual variations are even greater than when penicillin is given intramuscularly. That age alone has an enhancing and prolonging effect on penicillin blood levels was shown in previous studies.

**Distribution of Poliomyelitis Virus in Families.**—Wenner and Tanner call attention to the widespread distribution of poliomyelitis virus in certain households attacked by the disease. Their studies were made on five families. Of 24 members of these families 17 (13 children and 4 adults) had poliomyelitis virus in their intestinal discharges and in 7 (5 children and 2 adults) virus was detected in the throat. On the basis of history of onset of illness and isolation of poliomyelitis virus in members of four of the five households it is suggested that virus was seeded in respective members at a common source.

**Streptomycin in Miliary and Meningeal Tuberculosis.**—Bunn presents the results obtained with streptomycin in 100 patients with proved acute miliary tuberculosis and/or tuberculous meningitis who were treated in the course of thirteen months in forty-seven Veterans Administration Hospitals and in five civilian hospitals. Forty of these patients are still alive between 4 and 14.3 months following the initiation of treatment. The *pulmonary dissemination* of miliary tuberculosis proved the most responsive to streptomycin, but a considerable number (37 per cent) of patients with tuberculous meningitis have also survived. These results are interpreted not so much as meaning that streptomycin can cure these two types of disease but rather as indicating that it is capable of influencing favorably the course of tuberculosis.

### American Journal of Physiology, Baltimore

**154:**1-184 (July) 1948. **Partial Index**

Interrelation Between Length of Systole, Stroke Volume and Left Ventricular Work in Dog. J. W. Remington, W. F. Hamilton and R. P. Ahlquist.—p. 6.
Cholesterol and Capillary Permeability. Alene F. Silver.—p. 16.
Spectrophotometric Measurement of Traces of Dye T-1924 by Extraction with Cellophane from Both Blood Serum and Urine of Normal Dogs. T. H. Allen and P. D. Orahovats.—p. 27.
Acute Hypertension in Dogs with Cerebral Ischemia. A. C. Guyton.—p. 45.
Action Potentials in Rat Muscle with Twitch Tension Potentiated by KCl Treatment, Adrenalectomy, Tetanus and Treppe. S. M. Walker.—p. 63.
Brain Metabolism in Emotional Excitement and in Sleep. D. Richter and R. M. C. Dawson.—p. 73.
Descending Nerve Fibers Subserving Heat Maintenance Functions Coursing with Cerebrospinal Tracts Through the Pons. A. D. Keller.—p. 82.
Effect of Alloxan, Pancreatectomy and Adrenalectomy on Plasma Amino Nitrogen in Dog as Studied by Means of Hemorrhage. D. L. Kline.—p. 87.
Alloxan Diabetes in Sheep under Fasting and Non-Fasting Conditions. Esther L. McCandless, Barbara A. Woodward and J. A. Dye.—p. 94.
Comparison of Glucose Metabolism After Hemorrhage in Non-Diabetic, Alloxan Diabetic and Depancreatized Dogs. Clarissa Hager Beatty—p. 107.
Desoxycorticosterone Acetate and Blood Pressure of Dogs on High Sodium Chloride Intake. J. E. Summers.—p. 119.
Stability of Prothrombin and Ac-Globulin in Stored Human Plasma as Influenced by Conditions of Storage. J. L. Fahey, A. G. Ware and W. H. Seegers.—p. 122.
Ability of Stomach to Produce Electrical Energy. W. S. Rehm and L. E. Hokin.—p. 148.
Salt Excretion in Desert Mammals. K. Schmidt-Nielsen, B. Schmidt-Nielsen and H. Schneiderman.—p. 163.
Buffer Equilibria and Reabsorption in Production of Urinary Acidity. W. Menaker.—p. 174.

### American Journal of Tropical Medicine, Baltimore

**28:**629-754 (Sept.) 1948. **Partial Index**

Susceptibility of Chimpanzee to P. Malariae of Human Origin. J. Rodhain.—p. 629.
Isospora Hominis Infections Among American Personnel in Southwest Pacific. W. L. Barksdale and C. F. Routh.—p. 639.
Biologic Studies on Miracidium of Schistosoma Mansoni. J. F. Maldonado and Josefina Acosta-Matienzo.—p. 645.
*Effect of Para-Aminobenzoic Acid upon Clinical Course, Rickettsemia, and Development of Complement-Fixing Antibodies of Murine Typhus in Guinea Pig. J. F. Sadusk Jr., Constance Hjerpe and Mildred Freedman.—p. 673.
Cross-Immune Reactions Between Panamanian Strains of Q Fever and Endemic Typhus. E. C. de Rodaniche.—p. 683.
Biologic Properties of Strain of Toxoplasma Recovered from Fatal Case of Congenital Toxoplasmosis. I. Ruchman and R. J. Johansmann.—p. 687.
Tropical Rat Mite, Liponyssus Bacoti, as Experimental Vector of Rickettsialpox. C. B. Philip and L. E. Hughes.—p. 697.
Coccidioidomycosis Salivary Gland of Townsend Mole. L. E. Rector and Eleanor J. Rector.—p. 707.
Residual Effectiveness of DDT in Third Season After Application. W. G. Downs, R. Colorado Iris and J. B. Gahan.—p. 741.

**Para-Aminobenzoic Acid and Murine Typhus.**—Sadusk and his associates believe that the mechanism of action of para-aminobenzoic acid is primarily rickettsiostatic. They found that administration of para-aminobenzoic acid in adequate dosage to guinea pigs infected with murine typhus generally prevents the development of fever and scrotal reaction but permits the appearance of rickettsias in the circulating blood and the formation of complement-fixing antibodies. This rickettsemia appears in the treated animals at the same time as that observed in untreated infected animals. Complement-fixing antibodies also appear at the same time in both groups of animals, and the rise in titer likewise is about the same. Despite the fact that animals treated with para-aminobenzoic acid may exhibit no signs of clinical infection, such animals are immune to subsequent challenge with murine typhus rickettsias.

## American Review of Tuberculosis, New York

### 58:255-374 (Sept.) 1948

*Protective Vaccination Against Tuberculosis with Special Reference to BCG Vaccination. J. D. Aronson.—p. 255.
Recurrence of Coccidioidal Cavities Following Lobectomy for Bleeding Focus. D. Krapin and F. J. Lovelock.—p. 282.
Thoracoplasty Without Apicolysis. C. Domokos.—p. 291.
Four Rib Apicoplasty with Placing the Scapula into Thorax. C. Domokos.—p. 297.
Prognostic Significance of Occasionally Positive Sputum After Adequate Treatment of Tuberculosis: Follow-Up Study of Discharged Patients. R. Chang.—p. 303.
Significance of Positive Cultures in Apparently Adequately Treated Patients with Pulmonary Tuberculosis. H. Abeles.—p. 308.
*Public Health Significance of Rare Tubercle Bacilli in Sputum. F. M. Pottenger.—p. 314.
Closure and Healing of Tuberculous Cavities. J. Loesch.—p. 322.
Drug-Resistant Tubercle Bacilli in Patients Under Treatment with Streptomycin. E. Wolinsky, A. Reginster and W. Steenken Jr. —p. 335.
*Streptomycin Resistant Tubercle Bacilli: Incidence in Patients Treated with Streptomycin. S. Bernstein, N. D. D'Esopo and W. Steenken Jr.—p. 344.
Streptomycin in Experimental Tuberculosis: II. Response in Guinea Pigs Infected with Strains of Varying Degrees of Streptomycin Resistance. W. Steenken Jr. and E. Wolinsky.—p. 353.
Study of Certain Problems in Use of Standard Tuberculin. Fractionation of PPD, Standardization of Tuberculins, and Question of Sensitization. Florence B. Seibert and Emma Dufour.—p. 363.

**Vaccination Against Tuberculosis.**—According to Aronson BCG vaccine was administered intracutaneously to 1,551 American Indians ranging in age from less than 1 year to 20 years and to 123 newborn infants. At the same time 1,457 Indians of comparable age and living under the same conditions received an intracutaneous injection of sterile isotonic sodium chloride solution and served as controls. One hundred and thirty-nine newborn infants also served as controls. The vaccinated persons and controls were followed over nine to eleven years by means of tuberculin tests and roentgenograms of the chest, while the group of "newborn" infants was similarly followed for six to eight years. Among the 1,551 persons vaccinated with BCG there occurred a total of 55 deaths, including 6 deaths from tuberculosis. Among the 1,457 controls there occurred a total of 109 deaths, including 53 deaths from tuberculosis. Among the 123 newborn infants who were vaccinated 7 have died, none from tuberculosis. Among the 139 newborn controls, 15 have died, 4 of them from tuberculosis. The tuberculin reaction became positive one year after vaccination in 93.3 per cent of cases and has remained at approximately the same level throughout the course of study. Among the controls the tuberculin reaction became positive in 12.7 per cent within one year after the initial negative reaction, and there has been a constant and gradual increase in the percentage of the controls reacting to tuberculin. Roentgenologically demonstrable lesions having the characteristics of primary tuberculosis occurred in 22 of the vaccinated and in 120 of the controls. Minimal lesions of reinfection type, progressive lesions and miliary and extrapulmonary lesions of tuberculosis were found in 21 of the vaccinated and in 93 of the controls.

**Rare Tubercle Bacilli in Sputum.**—Pottenger says that at his sanatorium the dilution-flotation-picric-acid technic has been employed for the examination of sputum. By examination of three day specimens every six weeks it has not been possible to demonstrate an absence of bacilli for three consecutive examinations in more than 4 or 5 per cent of the patients at the time of discharge from the sanatorium. In contrast, many institutions report sputum conversion in 50 per cent or more. The author raises the question: "How dangerous is sputum which contains a few hundred or a few thousand bacilli in a twenty-four-hour quantity?" The "rare bacillus" stage of tuberculosis, with the discharge of a few hundred or a few thousand bacilli per day, is compared with the acute stage in which millions and even billions of bacilli are discharged per day. There is a question whether patients with chronic destructive lesions would even become continuously and permanently free from the discharge of bacilli, if technics for examination were sufficiently sensitive, even though the patients might be clinically well and able to carry on their regular work. As about two thirds of clinical patients give no history of association with "open" tuberculosis, the importance of susceptibility is compared with that of environment in causing illness. The author stresses the importance of reducing susceptibility through both vaccination and improvement in environment.

**Streptomycin-Resistant Tubercle Bacilli.**—Bernstein and his co-workers treated 45 patients who had pulmonary tuberculosis with 1 Gm. of streptomycin daily, divided in five or six equal doses, for a period of one hundred and twenty days. Tubercle bacilli isolated prior to therapy from all 45 patients were sensitive to 1.0 microgram or less of streptomycin per cubic centimeter of medium. After one hundred and twenty days of treatment with streptomycin, tubercle bacilli were recovered from the sputum or gastric contents of 31 of the 45 patients. Tubercle bacilli resistant to 10 or more micrograms of streptomycin per cubic centimeter were recovered from 26 of the 31 patients. Eighteen strains were capable of growth in over 1,000 micrograms of streptomycin per cubic centimeter of medium. The rate of development of streptomycin-resistant tubercle bacilli was greatest during the second month of therapy.

## Archives of Internal Medicine, Chicago

### 81:431-604 (April) 1948

*Temporal Arteritis: Review of Literature and Report of 5 Additional Cases. R. C. Crosby and R. C. Wadsworth.—p. 431.
Thrombosis of Inferior Vena Cava Due to Hypernephroma. M. M. Fisher and N. D. Ritz.—p. 465.
Pneumonia Associated with Acute Salmonellosis: Report of Case of Salmonella Bronchopneumonia and 14 Cases of Interstitial Pneumonia. A. P. Ingegno, J. B. D'Albora, J. N. Edson and P. J. Gianquinto. —p. 476.
Cytochrome C Therapy of Tissue Anoxia in Case of Hepatolenticular Degeneration. S. Zelman and T. Gilbert.—p. 485.
*Disregarded Seedbed of Tubercle Bacillus. E. M. Medlar, D. M. Spain and R. W. Holliday.—p. 501.
Apical Systolic Murmur. A. M. Master.—p. 518.
Gastroenterology: Review of Literature from July 1946 to July 1947. J. B. Kirsner, W. L. Palmer, W. E. Ricketts and others.—p. 534.

**Temporal Arteritis.**—Crosby and Wadsworth believe that benign arteritis and periarteritis of the temporal arteries are not as uncommon as the paucity of reported cases would indicate. The 2 cases here reported have been seen at the Eastern Maine General Hospital within a six month period. Three additional cases seen at the Joseph H. Pratt Diagnostic Hospital in Boston are briefly reported. This brings the total of reported cases to 48. The essential data of previously reported cases are analyzed. The pathologic changes in biopsy specimens of artery segments of 1 of the reported cases are described in detail. A dissecting aneurysm of one temporal artery and phlebitis of the accompanying veins were found. From the analysis and study of the clinical and pathologic data of all the reported cases it is apparent that temporal arteritis is a distinct clinical entity affecting persons of the older age group and characterized by local symptoms consisting of painful, tender, red, swollen, nodular and thrombosed temporal arteries with edema and pain in the adjacent structures and systemic symptoms consisting of fever, malaise, anorexia, loss of weight and weakness. The edema of the overlying skin is probably contributed to by phlebitis of the accompanying vein. Blindness is relatively common in this disease and was found in one or both eyes in 33.3 per cent of the cases. The possible prophylactic value of section of the middle temporal artery early in the disease is suggested. The local symptoms can be explained on the basis of inflammation of the temporal vessels and their branches. The systemic symptoms probably indicate a more generalized arteritis. The mortality of this disease, 12.5 per cent, is considerably less than that of most other forms of arteritis.

**Seedbed of Tubercle Bacillus.**—Medlar and his co-workers point out that the steady decline in the mortality from tuberculosis has been interpreted as indicating that this disease would in the near future become one of minor significance. This implies that there is a definite ratio between new cases of tuberculosis and deaths from the disease. Studies indicate, however, that the mortality rate and the annual incidence rate are independent. The present study was undertaken to determine the unknown source of infection, the "seedbed" of the tubercle bacillus. The authors found that among patients who died from tuberculosis the clinical diagnosis was incorrect six times more often for persons over 50 than for persons under 30 years. Among patients who died from other diseases, but who harbored tuberculosis which was capable of spreading, there was clinical recognition of tuberculosis in only one fourth. Older persons can have progressive disease with so few manifestations of illness that they may remain unrecognized spreaders of the infection. The registration of death from tuberculosis in New York City appears to be below the actual with respect to persons over 50 years of age. In a high proportion of new cases of tuberculosis the disease is apparently contracted from unrecognized sources of infection. Mortality rates, encouraging as they seem, do not indicate either the extent or the location of the seedbed in which the tubercle bacillus resides. The seedbed must be controlled if the continuity of the disease is to be broken.

## Journal of Pediatrics, St. Louis

### 33:401-524 (Oct.) 1948

The Hemodynamogram: Fetal, Normal, and Abnormal Blood Circulation Depicted by New Method. H. W. Bischoff, F. R. Leyva and E. C. Rice.—p. 401.
Truncus Arteriosus Communis Persistens: Report of 3 Cases. H. W. Bischoff, F. R. Leyva, R. H. Todd and E. C. Rice.—p. 411.
*Transfusions in Newborn Infants Through Abdominal Wall Segment of Umbilical Vein. L. R. Pinkus.—p. 418.
Methemoglobinemia in Young Infants. M. Cornblath and Alexis F. Hartmann.—p. 421.
Significance of Positive Blood Cultures in Newborn Infants. W. W. Waddell Jr. and W. Grossmann.—p. 426.
Socio-Emotional Factors Accounting for Growth Failure in Children Living in an Institution. R. Fried and M. F. Mayer.—p. 444.
Food Allergy: Death in Six-Day-Old Infant. C. B. Kelvin and R. A. Schless.—p. 457.
Erythrocyte Sedimentation Rate Determinations in Poliomyelitis and Other Infections of Central Nervous System and Meninges T. L. Hartman and L. Weinstein.—p. 462.
Preliminary Report on Rheumatic Fever in Virginia. Carolyn M. McCue and Louise F. Galvin.—p. 467.

**Transfusion in Newborn Infants.**—Recent literature contains reports on giving transfusions to the newborn infant via the umbilical vein within the umbilical cord. The applicability of the method is limited by the brief period during which the umbilical vein remains patent within the rapidly atrophying cord. Estimates of this period vary between twelve and forty-eight hours. Pinkus utilized that portion of the umbilical vein which lies within the abdominal wall. Here the vein is readily available even after atrophy of the umbilical cord. A transverse incision is made cephalad to the upper margin of abdominal insertion of the umbilical cord. The umbilical vein is visualized as a whitish, longitudinal, tubular structure elevating the thin midline aponeurosis. A 0.5 cm. longitudinal incision through the aponeurosis is made on either side of the vein. After loose application of a fine silk or a surgical gut ligature around the upper exposed portion of the vein, a transverse nick is made through its anterior wall. A cannula is then introduced cephalad until blood can be aspirated. The ligature is then tied with a single hitch to effect snug approximation of the vein wall around the indwelling cannula, and transfusion is carried out. On termination of transfusion, the cannula is withdrawn, and the ligature is tightened and completed with a second hitch. Skin edges are approximated with two silk sutures. The length of time after birth during which this technic is applicable is as yet undetermined, but its usefulness far outlasts the approach via the cord

## Pennsylvania Medical Journal, Harrisburg

### 52:1-88 (Oct.) 1948

Presidential Address. G. C. Engel.—p. 25.
Treatment of Epilepsy. M. T. Moore.—p. 31.
*Rheumatoid Arthritis: 475 Cases Treated with 721 Courses of Gold. A. Cohen, A. W. Dubbs and J. Goldman.—p. 35.
Ragweed Extermination Plan for Philadelphia: Results of First Year's Survey. G. I. Blumstein, J. Spiegelman and V. Hirsch.—p. 39.
Cancer Situation in Pennsylvania. L. D. Bristol.—p. 45.

**Gold in Rheumatoid Arthritis.**—Cohen and his associates gave seven hundred and twenty-one courses of gold therapy in 475 patients with rheumatoid arthritis. The same gold preparation was used in all cases. In the earlier cases a course of gold therapy consisted of intramuscular injections of 10 mg. twice weekly, four doses; 25 mg. twice weekly, four doses; 50 mg. twice weekly, four doses, and 100 mg. weekly, nine doses—a total of 1,240 mg. At present the course consists of 10 mg. twice weekly, four doses, and 25 mg. twice weekly, four doses; if improvement is shown at this point, the dosage is not increased, and 25 mg. is given weekly until a total of 790 mg. is administered; but if there is no improvement, 50 mg. is given twice weekly, four doses, 50 mg. weekly, nine doses—a total of 790 mg. The 100 mg. dose has been discarded entirely. This tendency toward lower dosage has increased the safety of gold therapy. Gold therapy resulted in definite objective improvement in 64 per cent. Toxic reactions were encountered in 15 per cent of the courses, 21 per cent of the patients. The authors conclude that gold therapy may be employed in rheumatoid arthritis with safety if conservative dosage is used, if vigilance against incipient toxic reactions is maintained, and if treatment is stopped and the antidote BAL is employed immediately on appearance of the first toxic symptoms.

## Plastic & Reconstructive Surgery, Baltimore

### 3:517-632 (Sept.) 1948. Partial Index

Nasal Deformities of Syphilitic Origin. V. H. Kazanjian.—p. 517.
*Wet Dressings in Plastic Surgery. W. S. Kiskadden and A. J. McDowell.—p. 524.
*Reconstruction of Thumb by Transposition of Adjacent Digit. R. C. Tanzer and J W. Littler.—p. 533.
*Reconstruction of Fingers. G. Nieto Cano.—p. 548.
Plexiglass Splints: Their Use in Pedicle Flap Attachments. G. S. Letterman.—p. 553.
Reduction of Massive Breast Hypertrophy. H. O. Bames.—p. 560.
Mandibular Bone Grafts. W. B. Macomber, R. A. Shepard and V. E. Crofut.—p. 570.
Polyethelene in Reconstructive Surgery. L. R. Rubin, G. W. Robertson and R. N. Shapiro.—p. 586.
Reconstruction of Nasal Tip: New Technic. R. C. Seeley.—p. 594.

**Wet Dressings in Plastic Surgery.**—Kiskadden and McDowell first cover the graft with only one or two single layers of gauze. Irrigating catheters, which may be old no. 16 to no. 20 urethral catheters with extra holes cut in them, are spaced about 2 to 3 inches (5.1 to 7.6 cm.) apart. They are then covered with several layers of moistened gauze sponges and one or two layers of abdominal pads or mechanic's waste. This dressing is then tied snugly in place over the graft by means of heavy silk sutures placed in the skin margins about the periphery of the wound. This dressing is then supplemented with an outer dressing of abdominal pads or mechanic's waste. The use of cellophane, oiled silk, rubber sheeting or other impervious materials is avoided, since it appears to promote the growth of pyocyanic and other infection. The success of the dressing depends on keeping it constantly and thoroughly saturated. Three ounces (90 cc.) of solution injected into each catheter every two hours day and night usually will be adequate. Old third degree burns that when first seen are grossly infected from prolonged improper care can often be grafted within three or four days with no other preparation than the application of wet dressings and correction of existing anemia with blood transfusions. This program presupposes the complete excision of the granulating surfaces and scar base down to normal tissue at the time of operation and the application of relatively thick grafts. Continuing the wet dressing for seven to ten days postoperatively results in a complete take of the grafts.

**Reconstruction of Thumb.**—According to Tanzer and Littler a satisfactory reconstruction of the thumb should meet three criteria: (1) sufficient forceful flexion and extension to permit grasping, (2) opposability of the tip of the reconstructed thumb to the pulp of at least one digit and (3) tactile sensation at its tip. The authors describe a method for the reconstruction of subtotal or total loss of the thumb, which meets these requirements. They present 7 cases in which this method was used. In most cases the transposition of an adjacent digit to thumb position requires the use of a pedicle flap to close the intervening defect It is preferable to perform the transposition and the bony fusion in separate stages in order to obtain a more accurate positioning of the reconstructed thumb. Following fusion, further revision in the nature of tendon transfers and grafts or shortening of the tip is frequently necessary. A damaged digit can often be more effectively employed in reconstructing a thumb than in attempting to restore its useful function as a finger.

**Reconstruction of Fingers.**—Nieto Cano reports the case of a factory worker, aged 21, all 5 fingers of whose right hand had been smashed. Surgical cleansing of the wound left the first and fifth fingers without skin over part of the last phalanges and the second, third and fourth fingers with only the proximal extremities of the first row of phalanges. The author took a piece of bone off the crest of the ilium in order to build up the skeleton of the three phalanges. The piece of bone so obtained has both compact and cancellous tissue. Over the sternum, the author made a Gillies tubed pedicled flap in order to cover the first phalanx of the middle finger and the artificial extremity of the same. He also made pockets under the skin for the second and fourth fingers. Skin grafts were made over the exposed areas of the first and fifth fingers. Except for the loss of the bone graft applied to the index finger the results were as intended.

## Proc. of Staff Meet. of Mayo Clinic, Rochester, Minn.

### *23:449-464 (Sept. 29) 1948*

Role of Alkaline Phosphatase in Osteogenesis After Transplantation of Bone. A. M. McKelvie and F. C. Mann.—p. 449.
*Significance of Ulcerating Lesion in Stomach After Gastro-Enterostomy. H. K. Gray and K. A. Lofgren.—p. 454

**Ulcerating Gastric Lesions After Gastroenterostomy.**—Gray and Lofgren reviewed the records of 825 consecutive patients seen at the Mayo Clinic during the ten year period from 1938 to 1947 inclusive, for those in whom a previously made gastroenteric stoma for duodenal or gastric ulcer had to be taken down owing to subsequent complications and for whom partial gastrectomy was performed as a secondary procedure. These subsequent complications for which surgical intervention was advised included jejunal ulceration near the gastroenteric stoma, malfunctioning gastroenteric stoma, gastric ulcer and gastric carcinoma, in descending order of relative occurrence. There were 41 gastric lesions that developed after gastroenterostomy for duodenal ulcer, of which 11 were gastric carcinomas and 30 were benign gastric ulcers. There also were 11 gastric lesions that developed or were retained after gastroenterostomy for gastric ulcer, of which 6 proved to be malignant and 5 proved to be benign gastric ulcer at the time of the subsequent gastric resection. Included in this study was 1 patient whose history showed that he had undergone gastroenterostomy for no demonstrable ulcer and in whom there developed a gastric carcinoma that required surgical intervention several years later. This review proves that lesions that develop in the stomach after gastroenterostomy has been performed have a high incidence of malignancy. Of the 53 patients in whom gastric lesions developed that required secondary gastrectomy, 18 had gastric carcinomas. The true nature of a lesion in a stomach on which gastroenterostomy has been performed is often difficult to determine clinically. The symptoms and clinical findings may give the impression of a benign lesion when the underlying condition is malignant.

## Psychiatry, Washington, D. C.

### **11:**223-324 (Aug.) 1948. **Partial Index**

Notes on Development of Treatment of Schizophrenics by Psychoanalytic Psychotherapy. Frieda Fromm-Reichmann.—p. 263.
American Character as Revealed by the Military: Descriptions and Origins. G. D. Spindler.—p. 275.
Oedipus Myth in History and Psychiatry: New Interpretation. A. J. Levin.—p. 283.
Observations Concerning Typical Anxiety Dreams. I. Harris.—p. 301.

## Psychoanalytic Quarterly, Albany, N. Y.

### **17:**303-434 (July) 1948. **Partial Index**

Concept of Transference. W. V. Silverberg.—p. 303.
Further Contribution to Study of Olfactory Repression with Particular Reference to Transvestitism. G. W. Wilson.—p. 322.
Ego Functioning in Two Types of Dreams. M. L. Miller.—p. 346.
Mannerisms of Speech: A Contribution to Working Through Process. S. S. Feldman.—p. 356.
Comments on Psychoanalytic Theory of Instinctual Drives. H. Hartmann.—p. 368.

## Public Health Reports, Washington, D. C.

### **63:**1247-1282 (Sept. 24) 1948

Statistical Studies of Heart Diseases: II. Important Factors in Heart Disease Mortality Trends. T. D. Woolsey and I. M. Moriyama.—p. 1247.

### **63:**1283-1318 (Oct. 1) 1948

Preliminary Report on Community-Wide Chest X-Ray Survey at Minneapolis, Minnesota. W. Roemmich, Francis J. Weber, F. J. Hill and Lucille Amos.—p. 1285.
Depression of Tuberculin and Histoplasmin Sensitivity Associated with Critical Illness. M. L. Furcolow, Mabel E. Emge and I. L. Bunnell.—p. 1290.
Variations in Histoplasmin Sensitivity in Certain Cities in Eastern Kansas. I. L. Bunnell and M. L. Furcolow.—p. 1298.
Effect of Different Methods of Coagulation of Culture Media on Tubercle Bacilli Growth. M. M. Cummings, Margaret C. Drummond and G. T. Lewis.—p. 1305.

### **63:**1319-1349 (Oct. 8) 1948

Diarrheal Disease Control Studies: I. Effect of Fly Control in High Morbidity. J. Watt and D. R. Lindsay.—p. 1319.
*Is Diabetes Mortality Increasing? I. M. Moriyama.—p. 1334.

**Is Mortality Due to Diabetes Increasing?**—Moriyama shows that the official mortality statistics for the United States *give no indication of the decline in diabetes mortality* which was expected after the discovery of insulin in 1922. On the contrary, the recorded crude death rate for diabetes has continued to rise. Data are presented which suggest that since the introduction of insulin the "true" diabetes mortality trend has been downward rather than upward. The author believes that this discrepancy can be explained by the fact that in the present method of selecting the primary cause of death, cognizance is not taken of the distinction made in the physician's statement that a particular cause was not related to the immediate or underlying cause of death but might have contributed to the risk of dying. In the case of diabetes this frequently results in primary cause assignments that cannot be justified on a medical basis. For example, a physician in attendance on a diabetic patient with heart disease may feel that the diabetes was a contributory factor to the risk of dying even though diabetes was under insulin control. In such a case, he would report the heart disease as the underlying cause of death and the diabetes as a contributory cause. In the cause of death classification, however, diabetes would be selected as the primary cause over heart disease. The author is convinced that unless the cause of death coding practice is modified in regard to diabetes, death statistics will continue to be a misleading index of the mortality risk from diabetes.

## Rhode Island Medical Journal, Providence

### **31:**533-588 (Sept.) 1948

Vesicovaginal Fistulae and Their Surgical Treatment. L. E. Phaneuf.—p. 547.
Modern Health Programs. E. A. McLaughlin.—p. 550.
Acute Ascending Paralysis: Case Report of Repeated Attacks with Complete Recovery. W. C. Weigner.—p. 556.
The Doctor's Role in Community Programs. H. R. Leavell.—p. 562.
Medical Statistics in Hospitals. Mary Nunez.—p. 580.

### **31:**589-648 (Oct.) 1948

Effective Procedures in Treatment of Injured Hands to Prevent Crippling Deformities. W. E. Browne.—p. 603.
Pneumonia Not Responding to Penicillin. M. Cutts.—p. 609.

## Rocky Mountain Medical Journal, Denver

### **45:**729-816 (Sept.) 1948

The Acute Abdomen. P. Thorek.—p. 748.
Preventive Pediatrics—Behavior Aspects. L. F. Hill.—p. 755.
Kala-Azar. C. M. Mazey and R. J. McGregor.—p. 762.
Distribution of Physicians and Physicians' Services in Colorado, 1948: I. Specialization. H. J. Dodge, M. M. Clapper and W. Darley.—p. 765.
One Answer to Small Rural Hospital Units. R. B. Patterson.—p. 771.

### **45:**817-904 (Oct.) 1948

Presidential Address. C. F. Hegner.—p. 836.
Political Influence of Medical Profession. D. H. Murray.—p. 842.
Renal Tumors. L. M. Arthur.—p. 849.
Group Practice and Health Insurance. S. S. Kauvax.—p. 854.
Obstetric Hemorrhage. E. S. Taylor and W. C. Pallas.—p. 856.

## Southern Medical Journal, Birmingham, Ala.

### 41:861-964 (Oct.) 1948. Partial Index

Vaginal Cytology of Postmenopausal Women: Study I. Cytologic Variations in Vaginal Smears. J. R. Kernodle and W. K. Cuyler.—p. 861.
Penicillin Instillation in Bronchiectasis. N. F. Thiberge.—p. 873.
Some Experiences in Use of Cutis Graft in Surgery: Case Reports. J. E. Cannaday.—p. 876.
Surgical Repair of Incontinent Anal Canal. C. Rosser.—p. 882.
Surgical Treatment of Chronic Ulcerative Colitis. G. W. Ault.—p. 884.
· Intraperitoneal Injury of Hollow Viscus Due to Nonpenetrating Wounds. C. A. Reifschneider and E. R. Jennings.—p. 888.
Radical Panhysterectomy (Wertheim) and Radical Pelvic Lymphadenectomy: Preliminary Report of 75 Operations. W. L. Thomas, B. Carter and R. T. Parker.—p. 895.
Retreatment of Carcinoma of Cervix. L. A. Calkins.—p. 902.
Experiences with Wertheim Hysterectomy in Oklahoma City. J. W. Kelso.—p. 906.
Treatment of Cervical Cancer in Local Tumor Clinics. W. B. Harrell and E. T. Ellison.—p. 909.
Blue Cross Plan and Medical Teaching Program. M. H. Coleman Jr. —p. 912.
Urinary Tract as Obstetrical Problem. W. A. Ruch.—p. 916.
Treatment of Eclampsia by Means of Regional Nerve Block. F. E. Whitacre, R. A. Hingson and H. B. Turner.—p. 920.
Primary Splenic Neutropenia. M. S. Sacks and T. N. Carey.—p. 922.
Treatment of Intertriginous Moniliasis. E. R. Scale and W. A. Clark. —p. 926.
Inhalant Sensitizations in Allergic Headaches. H. D. Ogden.—p. 931.

## Surgery, St. Louis

### 24:593-754 (Oct.) 1948

*Etiology of Acute Pancreatitis: Experimental Study. R. Lium and S. Maddock.—p. 593.
Combined Abdominothoracic Incision Particularly Adapted for Use in Total Gastrectomy and Esophagogastrectomy. A. J. Kremen.—p. 605.
Gastric Resection: Schoemaker-Billroth I Operation. J. F. Higginson and O. T. Clagett.—p. 613.
Suction and Feeding Tube for Postoperative Case of Gastric Resections. L. Singmaster.—p. 621.
Diaphragmatic Hernia Following Subdiaphragmatic Vagotomy: Case Report. J. M. Beal.—p. 625.
Role of Pleural Exudation in Infection Following Pneumonectomy: Experimental Study. J. T. Small and G. M. Higgins.—p. 628.
*Effect of Streptomycin, Local and Systemic, on Contaminated, Sutured Wounds. C. K. Kirby, J. A. Dull, H. E. Fulton and others.—p. 647.
Method for Puncturing Blood Vessels, Located and Exposed by Incision. H. Lamm.—p. 653
Some Technical Considerations in Arteriographic Examination of Lower Extremity. R. G. Smith and D. A. Campbell.—p. 655.
Value Derived from Utilizing Component Parts of Transversalis Fascia and Cooper's Ligament in Repair of Large Indirect and Direct Inguinal Hernia: Group of Cases. D. C. Donald.—p. 662.
Definitive Ambulatory Treatment for Infected Pilonidal Cysts. G. Crile Jr. —p. 677.
Ischial Decubitus Ulcer. E. Bors and A. E. Comarr.—p. 680.
Histology of Surgically Removed Sympathetic Ganglia. L. L. Bergmann, P. J. Harman, J. Pick and H. M. Wertheim.—p. 695.
Internal Fixation of Hip Fractures with New Lag Screw. J. S. Lundholm.—p. 703.
Epidermoid Cyst of Spleen. E. F. Parker and A. G. Brown.—p. 708.
Sciatica Caused by Cyst Formation in Old Hematoma: Report on 3 Patients Treated Surgically. R. Herz.—p. 714.
Amputation of Canine Atrial Appendages. H. K. Hellerstein, E. Sinaiko and M. Dolgin.—p 719.
Treatment of Malignant Lip Furuncles with Emetine. E. Melchior. —p. 724.

**Causation of Acute Pancreatitis.**—Lium and Maddock believe that two factors are responsible for most cases of pancreatitis, (1) obstruction of the pancreatic ducts in the presence of a (2) secreting or stimulated gland. In the experiments described in this paper it was the object first to obstruct the pancreatic ducts and then to stimulate the gland by various means. Stimulation of the pancreas has been produced by (1) feeding, (2) acetylcholine and physostigmine, (3) pilocarpine, (4) stimulation of the vagus and (5) secretin. In a high percentage of these experiments, combining obstruction of the pancreatic ducts and stimulation of the gland, acute inflammation of the pancreas and fat necrosis resulted. The most extensive and consistent damage resulted when the animals were fed two hours before ligation of the pancreatic ducts. The authors discuss the different mechanisms that can produce obstruction of pancreatic secretion. They correlate the clinical and experimental evidence to explain the varying degree of acute pancreatitis seen at operation or necropsy.

**Streptomycin in Contaminated, Sutured Wounds.**—Kirby and his associates say that streptomycin, with fewer limitations than the sulfonamide compounds and penicillin, appears to be a more suitable agent for application to wounds. It has a wide antibacterial range, being effective against both gram-positive and gram-negative organisms. It acts rapidly in the presence of blood and pus and is relatively nontoxic. In the experiments herein reported, sutured wounds produced in dogs have been inoculated with a standard dose of gram-positive and gram-negative organisms, a method resulting in 100 per cent wound infection and 53 per cent mortality in control animals. Prophylactic systemic (intramuscular) administration of streptomycin was effective in controlling the infection, as evidenced by a reduction in mortality, toxicity and septicemia. A single local application of 50,000 units of streptomycin in an ointment base appeared to be as effective as intermittent intramuscular administration for six days. This was true both when the streptomycin was applied locally at the time of inoculation with the organisms and when applied eight hours later after multiplication and invasion of the bacteria had begun. The occurrence of streptomycin-resistant organisms in many human traumatic wounds would be expected to limit the clinical effectiveness of streptomycin in the ointment base used in these experiments. In addition, the ointment base causes separation of the wound edges and acts, to some extent, as a foreign body.

## Texas State Journal of Medicine, Fort Worth

### 44:345-412 (Sept.) 1948

Clinical Value and Limitations of Electroencephalography. M. L. Towler. —p. 349.
Salicylate Intoxication: Report of Case. Lynn A. Bernard and E. A. Wilkerson.—p. 354
Advances in Infant Nutrition. J. P. Gibson.—p. 358.
Use of Gamma Globulin in Pediatrics: Clinical Observation. J. T. Frawley.—p. 361.
Lymphocytic Choriomeningitis: Clinical, Epidemiologic, and Laboratory Aspects. F. Brooksaler and S. E. Sulkin.—p. 364.
Pathologic Conditions of Nasopharynx: Diagnosis and Treatment. H. H. Harris.—p. 368.
Thrombophlebitis of Cavernous Sinus with Recovery. J. A. Stool and R. D. Lomas.—p. 372.
Management of Parotid Lesions. C. C. Cody III.—p. 374.
*Management of Chronic Suppurative Tympanomastoiditis. L. M. Sellers. —p. 378.
Role of Calcium in Bone Disorders. J. J. Hinchey.—p. 382.
*Chronic Inflammatory Lesions of Bone Resembling Neoplasms: Report of 3 Cases. L. W. Breck, W. C. Basom, M. S. Hart and J. R. Herz. —p. 386.
*Studies in Laboratory Diagnosis of Chancroid Disease: Preliminary Report. D. M. Kuhns, R. I. Anderson, Marjorie A. Henke and D. G. Wetherbee.—p. 389.
Tularemia: Some Clinical and Pathologic Observations. R. H. Rigdon. —p. 392.
Texas Public Health Training Unit. B. M. Primer.—p. 397.
Surgical Treatment of Intertrochanteric Fractures of Femur. F. C. Hodges.—p. 400.

**Chronic Suppurative Tympanomastoiditis.**—Sellers points out that chemotherapy and biotherapy have reduced to almost zero the incidence of acute suppurative mastoiditis. Various bacterial forms develop an immunity to these therapeutic agents when the agents are used in insufficient dosages and over insufficient periods. When immunity of the bacteria occurs in acute otitis media, the infection will become latent, the pathologic process will continue at a reduced pace, and chronic tympanomastoiditis will develop. Cases of chronic tympanomastoiditis usually stem from acute suppurative otitis media rather than from acute suppurative mastoiditis. As a result of the attempted arrest and repair, varying portions of the tympanum, attic and antrum, and usually a greater or lesser portion of the mastoid are involved in varying degrees. For this reason treatment must be determined by the distribution and type of lesion. Here lies the difference between acute suppurative otitis media and mastoiditis on the one hand and chronic suppurative tympanomastoiditis on the other. In acute suppurative mastoiditis (if no complications exist) the problem is the same in every case. It is the elimination of an acute suppurating focus. Each case of chronic tympanomastoiditis presents a problem of its own. The treatment of tympanomastoiditis is not necessarily surgical; under certain conditions medical treatment may be sufficient. Surgery should be advised and even urged when any of the following factors are present: (1) an active process in the mastoid, (2) an incarcerated cholesteatoma, (3) evidence of progressive necrosis in the tympanum or attic, (4) evidence of the extension of the process to the internal ear, the facial nerve or the intracranial cavity and (5) evidence of increased sepsis. The author stresses that because in the future chronic tympanomastoiditis will be the infectious disease of the temporal bone most frequently encountered, ability to perform the total or modified tympanomastoidectomy must be brought to its best technical development. In the author's hands the endaural approach has proved to be the more satisfactory.

**Inflammatory Lesions of Bone Resembling Neoplasms.**—Breck and his co-workers say that sometimes it is astounding how much an inflammatory lesion can resemble a bone tumor. They report 3 cases in which the differentiation was impossible clinically and roentgenologically. In 2 of these cases a tumor was believed to be the most likely diagnosis and an inflammatory process was considered in the differential diagnosis. In the third case a neoplasm was the only diagnosis seriously considered. One of these cases looked much like Ewing's tumor of the shaft of the tibia; the second case looked like an osteogenic sarcoma of the shaft of the metatarsal bone; the third case resembled an osteogenic sarcoma of the end of the fibula in a child. The differential diagnostic points in these cases are brought out by the case histories and discussion. The authors stress the importance of making a careful biopsy before instituting radical treatment in a case of suspected cancer of the bone.

**Laboratory Diagnosis of Chancroid Disease.**—Kuhns and his co-workers show that hitherto the diagnosis of chancroid was usually made by a process of exclusion, which consisted of repeated dark field examinations for spirochetes. If results were negative, diagnosis of chancroid or lymphogranuloma venereum was made, based on clinical manifestation. Chancroid disease was a considerable problem in the occupational troops in the Philippines. A study of contacts reported by Trussell of the Medical Laboratory in Manila indicated that many of the women demonstrated chancroid lesions which were negative for spirochetes on dark field examination; findings on direct smear were typical of Hemophilus ducreyi. Other investigators confirmed the role of H. ducreyi. Various mediums have been used for the culture of the organisms from chancroid lesions. At the laboratory with which the authors are connected it was found that tissue impressions on glass slides properly made and stained from chancroid ulcers consistently demonstrated morphologically characteristic H. ducreyi organisms. Of 40 penile ulcers suspected to be chancroid, 21 were found positive by direct smear; in 34 of the 40 cases cultures were made, and 14 of these were positive for chancroid. It is their experience that the impression smear and culture are reliable. The method of preparation of the lesion for making the smear is essential for success in making a good impression slide and for obtaining cultures of the organism. The authors confirm the value of the tryptose phosphate agar medium. An apparent mutation form of H. ducreyi, hitherto undescribed, has been reported.

## Virginia Medical Monthly, Richmond

### **75**:491-546 (Oct.) 1948

Advantage of Indirect Skin Tests for Young Allergic Children. W. A. McGee.—p. 491.
Gout Simulating Rheumatoid Arthritis. W. A. Read and R. Buxton. —p. 493.
Red Cross Blood Program. G. B. Dowling.—p. 498.
Foreign Bodies in Gastro-Intestinal Tract. R. L. Payne Jr.—p. 503.
Varied Allergic Reactions to Penicillin. J. B. Black Jr., J. W. Thomas, W. R. Graham and DuP. Guerry III.—p. 505.
Myocardial Infarction: Review of 100 Cases. J. R. Beckwith, W. R. Chitwood and A. E. Le Hew.—p. 511.
*Indiscriminate Use of Estrogens in Menopause. J. M. Habel Jr.—p. 517.
Report of 62 Cases of Infectious Hepatitis Occurring in 1946, Station Hospital, Camp Lee, Virginia. J. F. Schieve.—p. 521.
Colles' Fractures. T. B. Strange.—p. 526.

**Indiscriminate Use of Estrogens in Menopause.**—Habel points out that the increasing number of patients seen with uterine bleeding due to overstimulation of estrogenic hormones, and a recent article by Ayre, showing a definite relation between nutritional deficiency, excessive estrogens and inflammation as a possible cause of cancer of the cervix, led him to examine some of the effects of the excessive use of estrogens. There has been much controversy on the question of whether estrogenic substances can cause cancer or not, and the general conclusion is that they cannot, if given in the usual therapeutic doses. However, women who have late menopause—that is, between the ages of 50 and 55—are more prone to have adenocarcinoma of the uterus. It has also been stated that a woman experiencing a functional menorrhagia or metrorrhagia at the menopause, particularly a woman with evidence of persisting estrogenic effect in her postmenopausal years, should be regarded as predisposed to the development of adenocarcinoma of the uterus. It has been found that in cases of granulosa cell tumor of the ovary in postmenopausal women the incidence of carcinoma of the uterus is very high. Since this type of tumor causes an abnormal estrogenic stimulation, it is highly suggestive of estrogen-cancer relationship. The author further shows that the excessive use of estrogenic hormone may produce excessive bleeding and that the prolonged use of estrogenic substances will often cause prolongation of the menopause. Addiction enters into the indiscriminate use of estrogens. These undesirable effects can be prevented if patients are carefully selected and such substances as vitamin $B_1$, vitamin E and male sex hormone are substituted for estrogenic substances. Small doses of estrogens given over a short period of time in selected cases are desirable, but self medication should be discouraged.

## Western J. Surg., Obst. & Gynecology, Portland, Ore.

### **56**:513-564 (Oct.) 1948

Surgical Reflections, Mainly Regarding Cancer of Breast. L. B. Sherry. —p. 513.
Surgical Treatment of Carcinoma of Thoracic Esophagus: Technic of Transthoracic Thoracolaparotomy with Esophageal Resection and High Esophagogastrostomy. L. A. Brewer III and F. S. Dolley. —p. 517.
Testicular Pathology in Selected Cases of Endocrine Disorders. G. L. Laqueur.—p. 529.
Cesarean Section and Incidental Correction of Uterine Prolapse. S. S. Rosenfeld.—p. 535.
Intestinal Obstruction. C. L. Wagner, E. M. Rideout and E. B. Speir. —p. 537.
Surgical Procedures in Treatment of Chronic Clubfoot. L. S. Lucas. —p. 542.
Spinal Anesthesia in Vaginal Delivery: Report of 381 Cases. L. E. Smale and Virginia Pallais.—p. 545.
*Refrigeration in Obstetric Crises. F. M. Allen.—p. 548.
*Two Hour Pregnancy Test, Based on Rat Ovary Hyperemia. P. H. Fried.—p. 552.
Production of Ovulation in Anovulatory Patient. L. F. Bushnell.—p. 556.

**Refrigeration in Obstetric Crises.**—According to Allen obstetric hemorrhage is the principal cause of maternal death. Obstetricians of a former generation are said to have used the abdominal tourniquet as a final means of stopping postpartum hemorrhage. The method seems to have been abandoned and forgotten, doubtless because of the possibility of shock, paraplegia or organic damage. The author points out that these dangers can be reduced in proportion to the reduction of temperature. The unconscious or deeply anesthetized woman should be picked up by the feet and legs and held vertically with head down, to let all possible blood flow toward the head and the intestine fall toward the diaphragm. A tourniquet should be applied quickly around the abdomen just above the pelvic bones, and the patient immediately replaced horizontally on the table. A large very elastic pure rubber tube should be applied in several superimposed turns. The aorta and other arteries should thus be easily occluded. The legs and abdomen up to an inch or two above the tourniquet should be completely surrounded by finely crushed ice. Though every effort should be used to make the time of tourniquet application as short as possible, reasonably efficient refrigeration will provide ample time for both transportation and operation, even up to the six hour duration. After surgical hemostasis, when the tourniquet is removed, the body temperature should be raised rapidly to a little below normal.

**Two Hour Pregnancy Test.**—Fried shows that the two hour rapid rat ovary hyperemia pregnancy test is advantageous because of its increased sensitivity and rapidity, the rarity of false positive reactions, the increased tolerance of the rat to toxic specimens of urine and the conveniences of the test and test animals. However, unfavorable features are the false negative reactions and the lack of a sharp positive end point.

## FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

### British Medical Journal, London

#### 2:629-668 (Oct. 2) 1948

Present State of Knowledge of Anatomy of Primates. F. W. Jones.—p. 629.
Carcinoma of Breast and Its Treatment. C. Wakeley.—p. 631.
Early Diagnosis and Treatment of Carcinoma of Breast. V. Riddell.—p. 635.
Papilloedema in Emphysema. T. Simpson.—p. 639.
Out-Patient Electric Convulsion Treatment. W. P. Mallinson.—p. 641.
Case of Gross Overdosage of Soluble Phenytoin. T. N. Nauth-Misir.—p. 646.

### Journal of Royal Army Medical Corps, London

#### 91:51-92 (Aug.) 1948. Partial Index

Work and Problems of a Medical Officer Prisoner of War in the Far East. J. E. C. Robinson.—p. 51.
Group Therapy and Its Application in the British Army Today. J. T. Robinson.—p. 66.
*Early Diagnosis of Infective Hepatitis in Syphilitic Patients Undergoing Arsenical Therapy. W. Fowler.—p. 80.

**Early Diagnosis of Infective Hepatitis During Arsenical Therapy.**—According to Fowler, the incidence of infective hepatitis is still great in syphilitic patients undergoing arsenical therapy despite the care taken in venereal disease clinics to avoid dissemination of the causal virus. A diagnosis of hepatitis is seldom made prior to the appearance of bile in the urine, although it can be diagnosed in the preicteric stage by the intradermal histamine test of Kline. Unfortunately early symptoms such as nausea and loss of appetite, which would lead one to perform this test, are frequently so slight as to be disregarded. When examining records of cases of "arsenical jaundice," it was noted that in the majority of cases a loss of weight occurred shortly before signs of jaundice appeared. Attention to the weight of patients on antisyphilitic treatment and the Kline test on patients who lost 2 pounds (907 Gm.) or more within a week revealed that of 64 patients who contracted hepatitis 56 showed a loss of weight of 2 pounds or more seven to ten days before bile appeared in the urine. It is suggested that the use of Kline's test for all patients who show a sudden loss of weight of at least 2 pounds provides an easy and effective method of diagnosing infective hepatitis in the preicteric stage.

### Lancet, London

#### 2:517-554 (Oct. 2) 1948

*Penicillin in Diphtheria: Report of Subcommittee of Public Health Laboratory Service. R. Cruickshank and others.—p. 517.
*Thymine, Folic Acid and Vitamin $B_{12}$ in Nutritional Macrocytic Anemia, Tropical Sprue, and Pernicious Anemia. T. D. Spies, R. E. Stone, G. G. Lopez and others.—p. 519.
*Exchange Transfusion in Hemolytic Disease of Newborn. P. L. Mollison and M. Cutbush.—p. 522.
Influence of Restraint on Automatic Movements: Value in Diagnosis. V. Vujic and K. Kurtes.—p. 527.
Primary Carcinoma of Liver in Boy Aged 15. A. E. Beynon.—p. 528.
Delayed Pneumonitis in Beryllium Worker: Report of Case. J. N. Agate.—p. 530.

**Penicillin in Diphtheria.**—Cruickshank and his associates of the Public Health and Laboratory Service studied the penicillin sensitivity of 284 strains of Corynebacterium diphtheriae isolated in different parts of the country. Most of the strains tested were two or three times as resistant to penicillin as the Oxford staphylococcus. Gravis strains in C. diphtheriae were more resistant to penicillin than intermedius, and intermedius were more resistant than mitis types. All patients with acute diphtheria received antitoxin in doses depending on the severity of the case. A single bath of crystalline penicillin (sodium salt) was used. The standard adult dose was 60,000 units given intramuscularly every four hours during the day time only (daily dosage 240,000 units). Children up to 4 years of age received a third, and children aged 5 to 10 years two thirds, of the adult dose. Children over 10 years were treated as adults. Of 65 patients with acute faucial diphtheria treated with penicillin, 26 of 37 receiving a three day course and 23 of 28 receiving a six day course became free from the infecting organism within four days of the end of treatment. In 31 persistent diphtheria carriers treatment with penicillin was followed by the rapid disappearance of the organism from the throat in only 13 cases.

**Thymine, Folic Acid and Vitamin $B_{12}$ in Anemias.**—Spies and his associates made a comparative study of thymine, folic acid and vitamin $B_{12}$ under controlled conditions on selected patients with macrocytic anemia in relapse. One patient with pernicious anemia, one with nutritional macrocytic anemia and one with tropical sprue were each admitted three times to the hospital and given a diet free from meat and meat products. Base line determinations were made on each admission. Each compound produced a blood response and a definite clinical improvement. The fact that three distinct chemical compounds have proved effective in each of three distinct syndromes suggests that we may learn a great deal about the pathogenesis of these diseases. It appears that several thousand times the weight of thymine is required to produce a response similar to that produced by folic acid and that several thousand times the weight of folic acid is required to produce a response similar to that produced by vitamin $B_{12}$. These findings suggest that vitamin $B_{12}$ is by far the most potent antianemic substance known.

**Exchange Transfusion in Hemolytic Disease of the Newborn.**—Mollison and Cutbush advance the following aims for exchange transfusion in the treatment of hemolytic disease of the newborn: (1) to raise the hemoglobin level rapidly without increasing the blood volume; (2) to reduce to a minimum the amount of breakdown of Rh-positive cells during the critical first four days of life, since it is possible that the blood destruction in this phase is indirectly responsible for the tissue damage, and (3) to provide the infant with such a concentration of Rh-negative cells that no further transfusions will be needed. In their experience this has proved to be the most substantial advantage of exchange transfusion. The percentage exchange effected by withdrawing the infant's own erythrocytes and replacing them with Rh-negative erythrocytes depends on the infant's and donor's initial red cell counts as well as on the total volume of blood exchanged. It is important to secure a good percentage exchange of Rh-negative cells for Rh-positive cells and to leave the infant with a high absolute concentration of Rh-negative cells to tide it over the subsequent forty days or more, during which it is unable to maintain a satisfactory concentration of Rh-positive cells. This objective is best achieved by the use of donor's blood with a count of 5,000,000 to 6,000,000 erythrocytes. The severity of hemolytic disease of the newborn can be assessed reliably from an examination of cord blood. Although the authors have gained a favorable impression of the clinical effects of exchange transfusion, they admit that it has not as yet been proved whether it lowers mortality and morbidity. Since they have observed no ill effect from it, they consider it the most convenient therapeutic method available, but it is not a trivial procedure and should be reserved for cases in which a single transfusion of Rh-negative blood is not likely to suffice.

### Medical Journal of Australia, Sydney

#### 2:169-196 (Aug. 14) 1948

Surgical Pathology of Brain Abscess. G. Swinburne.—p. 169.

#### 2:197-224 (Aug. 21) 1948

Impressions of Tuberculosis Abroad. D. R. W. Cowan.—p. 197.
Treatment of Blocked Fallopian Tubes by Pressure Injections of Gas and Iodized Oil. A. Grant and R. Mackey.—p. 199.
Malignant Disease of Testis. J. Broughton.—p. 204.
Listeria Meningitis: Description of Strain of Listeria Monocytogenes and Report of Case. N. F. Stanley.—p. 205.

#### 2:225-252 (Aug. 28) 1948

Distribution and Availability of Nutrient Production in New South Wales. H. S. H. Wardlaw, E. G. Hallsworth, S. C. Graham and W. H. Pawley.—p. 225.
*Gangrene of the Leg Following High Ligation of Great Saphenous Vein. J. S. T. T. Hill.—p. 238.

**Gangrene of Leg Following Ligation of Saphenous Vein.**—Hill reports the case of a man on whom he performed a high ligation of the left great saphenous vein under general anesthesia. The vein was injected distally with 20 per cent role in the formation of hemoglobin and the red blood cells. The second is the study of thyroid physiology with radioactive iodine. The third, a very important one, presents the pertinent findings of atomic bomb irradiation in the Japanese.

**Essentials of Pathology.** By Lawrence W. Smith, M.D., F.C.A.P., Associate Professor of Pathology, Cornell University Medical School, New York, and Edwin S. Gault, M.D., F.C.A.P., Associate Professor of Pathology and Bacteriology, Temple University School of Medicine, Philadelphia. With a foreword by the late James Ewing, M.D. Third edition. Fabrikoid. Price, $12. Pp. 761, with 710 illustrations. The Blakiston Company, 1012 Walnut St., Philadelphia 5, 1948.

In the third edition of this textbook of pathology the form has been reduced to a conventional size, the text revised and augmented with new material, case histories condensed, repetitious and less important histories omitted, sixty-one new figures added, including four in color, and the bibliography brought up to date. The original format, with the text and illustrative case histories facing a page of photographs, has been retained. The authors have adhered well to their tenet that because of the limited time at the disposal of students today a textbook should be practical and restricted to absolute essentials. As a result, this book is an excellent textbook for beginners in pathology as well as for others who wish quickly to refresh their memories. It was not intended as a reference book for pathologists, some of whom, forgetting this, have criticized the book for its lack of scope and its avoidance of controversial issues. Textbooks might well at times be reviewed by students rather than by teachers. This reviewer, in the course of his teaching, noted that the new edition of "Essentials of Pathology" was widely used in his laboratory despite the fact that it had not been specifically recommended. The students using it did well in the course, many ranked high in the examinations, and several floundering students found in it the solution to their dilemma. With the students foremost in mind, academic pathologists should overlook the omissions of detail and brevity of discussion in this book and accept it as an excellent textbook in that it enables students quickly to develop a firm foundation in clinically applicable pathology.

**Traitement des dermatoses communes: Diagnostic d'après les lésions, schémas pathogéniques, topographie.** Par A. Desaux. Cloth. Price, 1960 francs. Pp. 1300, with 320 illustrations. Masson & Cie, 120 Boulevard Saint-Germain, Paris 6e, 1948.

This book offers much more than one would expect from the title. It is written in a clear and concise style and not only deals with the skin as an autonomous organ, but correlates the cutaneous organ and its manifestations with the entire field of medicine.

The first part (120 pages) describes the histophysiology of the skin, methods and technics of examination, including "Brocq's Alphabet of Dermatological Lesions" and allergic and biologic tests. The second part deals with the diagnosis and treatment of the common dermatoses, which are classified according to their primary lesions and localization. Rare dermatoses are briefly mentioned.

The book offers a wealth of carefully selected methods of therapy, including physiotherapeutic procedures. Each of the 320 photographs is accompanied by an extensive descriptive text.

The book is written primarily for students and junior dermatologists. The experienced specialist will also find it of value in that it groups and classifies a vast amount of well established and newer forms of therapy. The bibliography is extensive and complete.

**Breast Feeding: A Guide to the Natural Feeding of Infants.** By F. Charlotte Naish, B.A., M.B., B.Ch. Awarded Sir Charles Hastings Clinical Essay Prize, 1947. Oxford Medical Publications. Fabrikoid. Price, $3.50. Pp. 151, with 20 illustrations. Oxford University Press, 114 Fifth Ave., New York 11; Amen House, Warwick Sq., London, E. C. 4, 1948.

This book would have been much easier to review had the author specifically stated its purpose and for whose benefit it was written. If it was written for the medical profession, it is entirely superfluous, full of clichés, devoid of scientific observations and with scarcely an original idea. If written for the guidance of nursing or prospective mothers, it is a mixture of medical and nursery jargon and pseudodoxy, which will hardly meet the requirements of a popular book. Many of its inaccuracies are naive; some of its statements amusing, other subject to challenge. The author has gone to some lengths to belabor the obvious and to omit the essential. The subject could lend itself to an excellent little work for the guidance of mothers or, on a truly scientific plane, for the instruction of practitioners; as it is, it is neither.

Among the more glaring inaccuracies in this little volume are such statements as that an infant should nurse the breast with acute mastitis; that it is dangerous to teach that the breast must be emptied at each feeding; that the rate of growth is so much slowed down in the second six months that there seems little chance, indeed, of making up any lack of chest expansion that is found to exist at the age of 6 months; that it is important to have good early feeding, because of the necessity of distending the child's stomach in infancy, so that it can cope with the questions of food necessary for the growth and vigor of childhood.

In marked contrast, the *Journal of Pediatrics* for November 1948 (**33**:660) has a 6 page article entitled "Breast Feeding," by Samuel Stone and Harry Bakwin, which is a splendid example of how accurately and concisely this subject can be treated. It says much more in 6 pages than Dr. Naish tries to say in 149.

**How to Conquer Your Handicaps.** By Marie Beynon Ray. Cloth. Price, $3. Pp. 336. Bobbs-Merrill Co., 724 N. Meridian St., Indianapolis 7. 1948.

This book is written to honor the pioneers in medicine and surgery who have developed new technics for the disabled; the handicapped who achieved greatness in spite of their handicaps and the organizations which are helping the physicians and handicapped persons become useful citizens. The author states that her purpose is to tell the public in simple, nontechnical language the new developments in medical science for the preservation of man, as so much has been written on methods of destruction.

The development in orthopedic and plastic surgery, the methods used in the rehabilitation of the blind, deaf and those with speech defects and how through medical science the aged may still achieve success are told in an interesting and friendly manner. The book makes available the names of all the great men and women whose handicap contributed to their success, the names of physicians and surgeons and the institutions and organizations devoting their efforts to the development of methods for overcoming the handicaps produced by disabilities.

This book is recommended to physicians who are interested in knowing about the "third phase of medical care," or rehabilitation, and to those with disabilities who desire to conquer their handicaps.

**Recent Advances in the Study of Venereal Diseases: A Symposium.** Held under the auspices of the Syphilis Study Section, Division of Research Grants and Fellowships, National Institute of Health, U. S. Public Health Service in the auditorium of the U. S. Department of Commerce, Washington, D. C., April 8-9, 1948. Chairman, Syphilis Study Section: J. E. Moore. Paper. Price, $1.50. Pp. 341, with illustrations. Published in cooperation with the United States Public Health Service. Venereal Disease Education Institute, 216 North Dawson St., Raleigh, N. C., 1948.

Current investigative studies in human and experimental syphilis, as well as in the minor venereal diseases, are presented in this volume. The statistical analyses of the latest available results in a nationwide study of the treatment of early syphilis with penicillin are as valuable to the internist as they are to the syphilologist and to the public health officer. The presentations of the results of treatment of the various types of neurosyphilis with penicillin alone and with combined malaria and penicillin offer to the neurologist, the ophthalmologist and the internist the latest data on these controversial therapeutic problems. The current status of cardiolipin antigens, which represent a significant advance in serologic tests for syphilis, is presented.

This volume contains a number of individual investigations on which current concepts of diagnosis, epidemiology and treatment of venereal diseases are based. However, this volume is a symposium, and it contains much diversity of opinion. It does not represent a systematized presentation of current studies in the field of venereal diseases.

# Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

## TREATMENT FOR TAPEWORM

*To the Editor:*—What is the best treatment of tapeworm (Taenia saginata) in a 2½ year old child weighing 28 pounds (12.7 Kg.)? Please give exact dosage and procedure. Bianca Sender, M.D., New York.

Answer.—The success of therapy of Taenia infections depends largely on careful preparation of the patient to insure an upper digestive tract free of food, which enables the drug used to come in intimate contact with the worm. Children not infrequently vomit the anthelmintics used in tapeworm therapy, which greatly reduces their effectiveness and often necessitates repeated treatments or resort to the duodenal tube for administration of the drug.

*Preparation of the Patient.*—A liquid luncheon but no supper is allowed the day preceding treatment. Water or carbonated drinks can be taken freely, but milk should not be permitted after luncheon.

*Administration of the Anthelmintic:* At 8 a. m., 6 cc. of the following emulsion is administered: oleoresin of aspidium 1 cc. or Gm., powdered acacia 1.5 Gm. and water sufficient to make up to 12 cc. One hour later the second 6 cc. of the emulsion of aspidium should be given. If the child is uncooperative and will not swallow the aspidium mixture or if he vomits it, the drug may be given by duodenal tube. Two hours later (11 a. m.) one flat teaspoonful of magnesium sulfate should be given in a glass of water, to be followed two hours later with a soapsuds enema. All stools resulting from the purge and enema should be passed into a container and examined for tapeworm. Search should be made for its head. Toilet paper should not be thrown into the bedpan, as it makes search difficult and the tapeworm head may adhere to it. The child should rest in bed during treatment.

Hexylresorcinol, which is nontoxic and effective, involves administration of the drug by duodenal tube. It may be substituted for the aspidium mixture. The preparation of the patient and all other details of treatment are the same. At 8 a. m. a mixture of 0.30 Gm. hexylresorcinol and 2 Gm. of powdered acacia in 20 cc. of water is given by duodenal tube. The hexylresorcinol is secured by removing the outer gelatin coating from three 0.1 Gm. crystoids anthelmintic® pills of Sharp & Dohme Company and thoroughly pulverizing the inner pills.

If large sections of the tapeworm are passed but the head is not found, treatment should not be instituted again for two to four months, as it is possible that the head was removed but missed in the stool search. If the head remained in the child, a new tapeworm will grow and eggs and segments will appear in the stool in several months, at which time the child should be treated again.

## "OTTO" PELVIS

*To the Editor:*—What information is available on "Otto" pelvis, particularly as to causation and treatment and its incidence in children? Ernest E. Myers, M.D., Lexington, Ky.

Answer.—Intrapelvic protrusion of the acetabulum or "Otto" pelvis involves the hip joint and is usually seen in adults. It occurs in women twice as often as in men. The cause is obscure, but any condition which results in "softening" of the bone about the acetabulum may permit this deformity to develop. It has not been recognized often in children. Pomeranz published a complete account of this interesting lesion (*J. Bone & Joint Surg.* 14:663-686, 1932).

## SCHOENLEN'S PURPURA

*To the Editor:*—What is the approved treatment for Schoenlein's purpura? My patient is a woman 25 years old. She does not have symptoms except for frequent eruptions of purpuric spots. M. D., New York.

Answer.—Satisfactory treatment for Schoenlein's or so-called allergic purpura is not known. Sensitization to certain foods is thought to be a cause of this type of purpura, but it is seldom possible to prove such a relationship. Spontaneous recovery is common.

## WARTS

*To the Editor:*—In a male patient, aged 20 warts developed around bases and lateral margins of the finger nails. The patient was stationed at an army camp in Georgia. He has been treated by many specialists in dermatology with poor results. The warts are disfiguring and uncomfortable. Some of the finger nails have come off and are starting to be replaced. What do you suggest? M.D., Oklahoma.

Answer.—The long list of remedies recommended for the treatment of warts indicates clearly that all of them may prove to be beneficial in some cases, but not in all cases. The remedies include internal measures such as potassium arsenite solution, protiodide of mercury and magnesium sulfate by mouth; destructive measures such as freezing with solid carbon dioxide, the application of liquid air, cautery, diathermy; the application of either salicylic acid in flexible collodion or a heavy oil such as castor oil; radiation with either roentgen rays or radium; bismuth compound administered intramuscularly or directly under the wart; specific vaccine and hypnosis or some allied measure which depends on suggestion.

It might be well in this case to apply radium to the warts, but it must be applied with skill and caution by one with experience in the method. If such treatment is not available, apply a 20 per cent salicylic acid in flexible collodion once or twice during the day and overnight cover the warts with gauze soaked in castor oil. If a reasonable trial with this method should fail to secure results, bismuth salts may be administered intramuscularly by the same dosage and technic as when it is used for the treatment of syphilis. If necessary, one may resort to a destructive measure such as liquid air, if it is available, or to electrosurgery, although the latter may produce scars. Any of these measures are likely to eradicate the warts; yet it is possible that the warts may persist despite all such treatment. Then the patient will note one day that all of the warts have suddenly disappeared and credit for the cure will go to the last method that was used, even if it had no direct relation to the disappearance of the warts.

## CEREBRAL INJURY

*To the Editor:*—A boy 14 years old was in an automobile accident on July 5, 1948. Nose or ear bleeding or discharge from ears was not apparent. The boy did complain of a slight headache, not localized. The headache grew progressively worse. Examination of spinal fluid on July 20 revealed 24 red blood cells in the field and was otherwise negative. On Aug. 14, 1948 another examination of spinal fluid revealed 9 red blood cells in the field. Headaches still persist. Neurologic examination reveals no abnormality. I have the impression that the boy has subarachnoid bleeding. Are there other tests to substantiate such a diagnosis? What other explanation could be given for the persistent headache? F. Stuczynski, M.D., Brooklyn.

Answer.—Granting that the red blood cells discovered in the spinal fluid on July 20, 1948 were not there because of needle trauma of a vessel, it would appear that there had been some subarachnoid bleeding as the result of the injury on July 5. The hemorrhage into the subarachnoid space must have been slight. Twenty-four cells in the fluid would not have been sufficient to cause visible tinging of the subarachnoid fluid. While the case history states that the boy had no apparent (visible?) injuries, it does not state whether he was dazed or dizzy immediately after the injury. He did have slight generalized headache. The headache has grown progressively worse over a number of weeks but without the development of abnormal neurologic findings.

The combination of symptoms, spinal fluid findings and course as given suggests the possibility of one of two conditions—a subdural hematoma or a persistent cerebral edema. The symptoms of subdural hematoma may or may not become evident within a short period of the time of injury. If the symptoms, which are variable, but most commonly include headache, irritability, dizziness, disorientation, mental dulness and later vomiting and lethargy, develop gradually, the course speaks strongly for a subdural hematoma. Careful, repeated neurologic examinations, including ophthalmoscopic examination, should be made. Often positive neurologic signs cannot be discovered even when there is a subdural hemorrhage, but the symptoms, sometimes mistaken for neurotic ones, and the course point to the diagnosis. The hematoma may be bilateral and is commonly parietal in location. The treatment is surgical and consists of burr hole drainage of the hematoma. The other condition to be considered, persistent cerebral edema, is the result of seemingly minor contusion of the brain with a "vicious circle" edema; i.e., because the cranium does not allow for free swelling of the injured tissue, the drainage of fluid from the area is impaired with some resulting increase in the edema. The effects are noticed particularly if the patient is not kept in bed for a sufficient length of time immediately after injury. Hypertonic intravenous solution (sucrose 50 per cent, 100 cc.) and, possibly, lumbar puncture, removing 20 cc. of fluid, will help, but the chief treatment consists of rest in bed until the edema subsides and free circulatory drainage of the edematous area is established. In the case stated it would be well to keep in mind the possibility of subdural hematoma. Subdural hemorrhages may not organize as do other clots. The limiting membrane may serve as an osmotic wall for the absorption of still more fluid and the hematoma may encroach progressively on the cranial contents.

## PROGNOSIS FOR Rh-NEGATIVE MOTHERS

*To the Editor:*—A 26 year old patient had a healthy baby in January 1948. She is pregnant again, and expected delivery is May 1, 1949. Examination of blood showed an Rh-negative reaction. The husband's blood is Rh positive. Although it is known that an Rh-negative mother may have a perfectly healthy baby, I should like to ask whether the infant should be given a transfusion through the cord with Rh-negative blood immediately after delivery, even before definite erythroblastosis of the infant has been discovered by blood studies. If blood transfusion is performed, should the blood be of the same type as that of the infant?

M.D., Connecticut.

Answer.—Not more than 1 in 20 Rh-negative women married to Rh-positive husbands give birth to infants with erythroblastosis in any pregnancy and the fact that a woman is Rh negative is not in itself reason to contemplate transfusion of the infant. A transfusion through the umbilical cord can be given up to eight or ten hours after birth. Unless definite symptoms of erythroblastosis are present no benefit is to be derived from the administration of blood. It is not a prophylactic measure. If symptoms of erythroblastosis are present and transfusion is given the blood should be Rh negative and of the same blood group as the infant.

## PROCAINE ADMINISTERED INTRAVENOUSLY

*To the Editor:*—Has procaine hydrochloride in 1 per cent solution been used intravenously to check attacks of paroxysmal tachycardia?

Harry H. Brauer, M.D., Sisseton, S. D.

Answer.—Procaine hydrochloride in 1 per cent solution has been used dramatically in restoring normal rhythm in a boy aged 7 years with circulatory arrest due to proved ventricular fibrillation of twenty-seven minutes' duration. Cardiac massage was employed and procaine hydrochloride administered intravenously in two doses, the first one consisting of 3 cc. of 1 per cent solution given fifteen minutes after the cessation of the heart beat and 2 cc. given intravenously eleven and one-half minutes later with restoration of normal rhythm thirty seconds after the second injection. Ventricular fibrillation was proved by electrocardiogram. This case was reported in the August 28 issue of The Journal, page 1575, by Lampson, Schaeffer and Lincoln.

Intravenous administration of procaine has also been used prophylactically and effectively for the prevention and correction of cardiac arrhythmias associated with cyclopropane anesthesia as reported by Kraft in the *Canadian Medical Association Journal* (**57**:350, 1947). For this a 0.1 per cent solution was advised with or without thiopental sodium.

Procaine has also been used intravenously to relieve postoperative pain in the dilute solution of 0.10 per cent. With a stronger solution, toxic effects may result.

For the routine treatment of paroxysmal tachycardia, such therapy seems unnecessary, but in serious cases procaine may prove worth while, although it is not in routine use as yet.

## SULFONAMIDE MIXTURES

*To the Editor:*—I am considering use of a mixture of sulfadiazine two parts with sulfamerazine one part. What is the consensus among authorities regarding use of sulfadiazine alone or in combination with other sulfonamide compounds in the treatment of infants and children?

F. A. Stewart, M.D., Newport, R.I.

Answer.—The purpose of mixtures of sulfonamide compounds is to lessen the toxicity to the kidney from the formation of crystals of the insoluble acetyl derivatives. The observation of Lehr (*Proc. Soc. Exper. Biol. & Med.* **58**:11-14, 1945) that the solubility of a sulfonamide compound in a mixture of sulfonamide compounds is independent of the concentrations of the other sulfonamide compounds present, whereas the therapeutic efficacy is additive, suggests that the optimum mixture consists of equal parts of each sulfonamide drug. The principal advantage of the mixture mentioned in the inquiry is lost by the use of unequal proportions of the two compounds.

Whether or not the use of mixtures of sulfonamide compounds is of any real advantage is controversial. Whereas Lehr maintains there is a decided advantage (*J. Pediat.* **29**:275, 1946; J. A. M. A. **137**:1150, 1948), Zeller and others (J. A. M. A. **136**:8, 1948) and Garb and Janoff (J. A. M. A. **138**:381, 1948) maintain that the advantages are not significant from the clinical standpoint. The papers by Lehr and by Zeller furnish information on dosage, absorption, excretion and toxic reactions.

There is therefore a theoretic advantage to the use of sulfonamide mixtures in children and infants, but whether this advantage is as great as that obtained by the use of sulfadiazine or sulfamerazine alone with the concurrent administration of sufficient alkali to maintain the urine at a $p_H$ of 7.5 or higher remains to be determined.

## SUBSTITUTE FOR TABLE SALT

*To the Editor:*—I have the problem of a practically salt-free diet for both myself and wife. I wonder whether you have a formula for making the substitute salt, which contains other chlorides of potassium, ammonium, etc. I have made up a fair substitute, potassium and ammonium chlorides equal parts with four parts of starch, which answers fairly, but have no doubt that you have a much better formula, and if it is available would much appreciate your advice in this matter.

George A. Skinner, M.D., Berkeley, Calif.

Answer.—The substitute about which you inquired is no doubt a preparation called "neo-curtasal," manufactured by Winthrop-Stearns, Inc. This material seems to be a fairly satisfactory substitute for ordinary table salt, and as you will see from its formula, contains no sodium.

## DIABETES HEREDITY

*To the Editor:*—What is the incidence of diabetes mellitus in children with one diabetic parent?

M.D., Illinois.

Answer.—Since the tendency to become diabetic is probably transmitted through recessive genes, the incidence of diabetes in offspring with one diabetic parent depends on the carrier tendency in the marital partner. In a large series of diabetic persons one parent was found to have the disease in 9 per cent of the cases and neither parent in 91 per cent.

## VENOMOUS BITES AND STINGS

*To the Editor:*—Strong exception must be taken to the advice (The Journal, October 30, page 720) to apply heat for relieving the pain of lizard or spider bites or scorpion stings. The accelerated absorption of poison with hyperemia must increase systemic dangers. As against the total absence of scientific evidence favoring heat, the use of cold is supported by: (1) the known analgesia of refrigeration; (2) the marked delay of absorption, shown by (*a*) retarded absorption of penicillin (Trumper, M., and Hutter, A. M.: *Science*, 100:432, 1944), (*b*) protection of rabbits against fatal quantities of mustard gas (Yudin, S. S.: *Am. Rev. Soviet Med.* 2:4, 1944) and (*c*) radical arrest of intoxication from infected gangrene and burns; (3) the anesthesia which facilitates incisions; (4) the known promotion of drainage by cold, presumably because coagulation of exudate is inhibited, and (5) a single newspaper report of a school teacher who applied ice to a scorpion sting, with complete suppression of all local and general symptoms.

Snake bite presents a more formidable problem, including local tissue necrosis produced by a powerful enzyme in the venom, particularly of the rattlesnake. This enzymic action can be arrested by refrigeration, but too prolonged contact with tissues may result in even greater destruction after the temperature is raised. This is not a hazard with lizards, scorpions, spiders, bees, etc., and with a sufficiently dangerous snake bite the local may be preferable to the systemic risk.

This brings up the old tradition of the tourniquet. My own experiments with snake venom (*South. M. J.*, 31:1248, 1938; *Am. J. Trop. Med.*, 19:393, 1939) were made unsuccessful by the use of an occlusive tourniquet, which is disastrous even at ice temperature and still more so at normal temperature. Poisons such as strychnine and procaine are destroyed rapidly enough so that if a fatal dose is injected in a limb, a tight tourniquet applied and released at suitable intervals can absolutely save life. The fallacy for venom is that its destruction requires more time than is feasible for tourniquet application. There is just one use for an occlusive tourniquet. Snakes kill over 30,000 persons in the world annually, and over 90 per cent of the bites are on the limbs. Antivenin is seldom available in time, and excision can seldom cope with the astonishingly rapid diffusion of the venom. The knowledge should be broadcast that a presumably fatal bite, even from a bushmaster or king cobra, can be countered by immediate application of a tight tourniquet a few inches above the wound. Amputation can then be performed when feasible, perhaps hours later when the limb is completely insensitive. Except in the rare instances of direct injection of venom into a vein, it is always possible thus to save life at the cost of a limb. But since most snake bites are not fatal, and drainage by incision and suction has been proved beneficial, a tourniquet if used should be limited to a light "venous" constriction for promoting this process.

The main conclusion is that refrigeration with ice or the coldest obtainable water should be included in the treatment of snake bite for reducing pain and retarding absorption; and for lesser bites and stings it not only will relieve symptoms but may be practically curative.

Frederick M. Allen, M.D., New York 28.

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# RADIOCARDIOGRAPHY AND ITS CLINICAL APPLICATIONS

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and
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Radiocardiography is a method of recording graphically the passage of radioactive blood through the cardiac chambers by means of a specially constructed ink-writing Geiger-Mueller counter.[1,2] It permits the study of certain hemodynamic functions heretofore not possible.

It is the purpose of this communication to describe the technic of this procedure and to discuss preliminary observations on its clinical usefulness. The method has already been found helpful in the diagnosis and prognosis of a number of cardiac conditions. In some cases information has been obtained which could not be arrived at by any other means. The procedure requires but a simple venipuncture; it does not subject the patient to any unpleasantness and is completed in one to two minutes. According to authorities in the field of radiation, whom we have been able to consult, the method is clinically safe. Radioactive sodium ($Na^{24}$) has a short half-life (14.8 hours) and is rapidly eliminated by the kidneys.

This procedure has now been performed on over 400 patients during the last two years without any noticeable untoward effects.

## METHOD

A carefully shielded Geiger-Mueller tube is placed over the precordium; 0.1 to 0.2 millicurie of radiosodium ($Na^{24}$) is rapidly injected into one of the antecubital veins, and the counts are recorded by means of a newly devised ink-writing counter (fig. 1). The curve thus obtained records the concentration of radiosodium in the structures underlying the tube. Of these structures the heart is the major recipient of the radioactive substance. Zero radioactivity is represented on the baseline of the graph; as concentration of radioactivity increases, the curve rises proportionately.

In the early experiments,[2] we obtained in normal persons both diphasic and monophasic curves. It was difficult to understand this variation until further study revealed that after an ordinary rapid intravenous injection, completed in half a second, it might take as long as twelve seconds before the last trace of sodium 24 had left the vein. This was determined by placing a second counter tube in the axilla over the subclavian vein and measuring the time it took for the vein to empty itself of labeled blood. It is thus easy to understand why, with such great delay in passage of the test material, curves would have poor definition and be monophasic. Efforts were made to overcome this venous lag and to get the sodium into the heart more rapidly and in one compact mass. This, of course, could be accomplished with a cardiac catheter or through injection into the jugular vein. However, such procedures are undesirable because they reduce the simplicity of the method. We did partially overcome the venous lag by (1) warming the extremity before injection, (2) exercising the arm and (3) raising the arm vertically immediately after injection. This latter procedure needs special emphasis, for if the arm is not raised—as was the case in our earlier experiments—the flow of the labeled blood into the superior vena cava and right ventricle may be very sluggish, resulting in R waves of relatively low amplitude with a more slowly rising (less vertical) ascending limb. Such were the curves obtained in our earlier work.[2] The arm was bared of clothing and raised in such a manner as to prevent constriction of the vein. In addition, pressure for hemostasis over the site of puncture was avoided; raising of the arm was sufficient to bring about control of bleeding. The observance of these precautions is of the utmost importance, for any interference with the free flow of blood between the site of injection and the entrance into the heart will materially influence the tracing and significantly reduce its diagnostic value. A two syringe technic was also developed to flush the sodium into the heart, but this again complicated the setup and was therefore discarded. It is of great importance to insure a good venipuncture and rapid injection. By observing these principles, we have obtained uniformly characteristic curves of the following description. It is likely that, with further improvements in the technic, better radiocardiographs will be obtained.

The precordial tracings in normal subjects consist of two principal waves connected by a plateau-like transitional point (fig. 2). The tracing reads from right to left; the injection point is at the far right. For purposes of simplicity the first wave has been called the R wave; it traces the blood through the chambers of the right side of the heart. The second wave, which traces the blood through the large pulmonary veins behind the heart, and the left cardiac chambers, is termed the L wave.

The R wave has the following characteristics: the upstroke, which represents the arrival of the sodium 24 into the superior vena cava and the right cardiac chambers, rises abruptly one-quarter second to two seconds after the injection. Sometimes, after it reaches a peak and describes a sharp point, it immediately descends. In other instances, there is a short

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From the Institute for Medical Research, Cedars of Lebanon Hospital, Los Angeles.

Read before the Section on Experimental Medicine and Therapeutics at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

Dr. John Lawrence, Dr. R. W. Dunn and other members of the staff at the University of California in Berkeley supplied sodium 24; Dr. Lewis Bullock and Dr. John D. Little provided patients with congenital heart disease, and Miss Joan Oppenheim, Mrs. Sylvia Deutsch, Mrs. Lee Panish and Mr. Sol. Greater gave technical aid in the experiments. Dr. I. C. Brill assisted in the preparation of the manuscript.

1. The apparatus was designed by Dr. Burton F. Miller of Los Angeles.

2. Prinzmetal, M.; Corday, E.; Bergman, H. C.; Schwartz, L. L., and Spritzler, R. J.: Radiocardiography: A New Method for Studying the Blood Flow Through the Chambers of the Heart in Human Beings, Science **108:** 340 (Sept. 24) 1948.

plateau at the top of the wave. The wave descends because the labeled blood is leaving the right side of the heart. The descending limb of the R wave is vertical at first, but soon slopes gently into a J-shaped curve; the bottom of the "J" is called the transition point or zone. When the R wave is plotted on semilogarithmic paper, it resembles the dye concentration curves of arterial blood utilized for the determination of cardiac output.[3] On semilogarithmic paper the descending limb of the R wave forms a straight line. The transition point corresponds to the time when most of the labeled blood is in the lung on its way from the right to the left side of the heart.

The L wave is much lower than the R wave, but is about twice the duration of the latter. The lower amplitude as well as the longer duration of the left-sided complex is explained by the fact that the sodium 24 is diluted in a larger volume of blood as it flows through the vast pulmonary vascular bed into the pulmonary veins and left cardiac chambers. The ascending limb of the L wave, which represents the filling of the great veins and the left side of the heart, is of short duration—one to three seconds; it is followed by a long gentle slope of descent, representing the emptying of the left cardiac chambers of the bulk of labeled blood. The wave finally reaches an equilibrium above the baseline and continues in a horizontal line. The descending limb of the L wave is the longest portion of the tracing. Its duration in normal radiocardiograms may be as long as the sum of the entire R wave plus the ascending limb of the L wave.

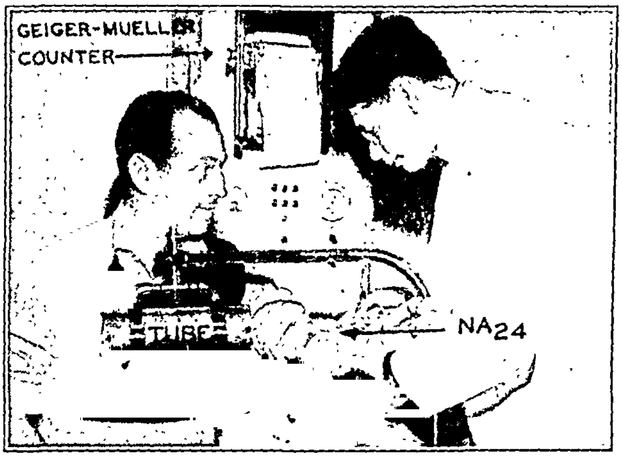

Fig. 1.—Demonstration of the technic of radiocardiography. The shielded Geiger counter tube is in front of the precordium. The Geiger counter is shown in the background. The radioactive sodium ($Na^{24}$) is injected into the antecubital vein.

## CLINICAL APPLICATIONS

During the past two years we have found the procedure to be of clinical value in the diganosis and prognosis of several cardiac conditions. It proved especially useful in differentiating heart disease from other conditions which tend to simulate myocardial insufficiency—a differential diagnosis sometimes difficult or impossible to establish by other methods. Furthermore, on several occasions, by this method, heart disease was discovered in persons in whom such disease was never suspected.

The following observations illustrate the usefulness of this new procedure in clinical diagnosis and prognosis:

1. Figure 3 shows a radiocardiogram of a 56 year old man who had emphysema and decided pulmonary fibrosis. For the previous seven months he had pronounced edema of the ankles. He was seen by a competent cardiologist who diagnosed the condition as heart failure, for which digitalis and diuretics were prescribed. There was no improvement. The radiocardiogram showed that the pumping qualities of the heart were normal; the subsequent course revealed that the ankle edema was due to lymphatic obstruction.

2. Figure 4 is that of a 73 year old man who was sent up from the surgical wards as a normal control without heart disease. The radiocardiogram was grossly distorted; it exhibited a long monophasic wave with decided prolongation of the descending limb. It was obvious that the curve was abnormal. The patient was therefore studied more closely, and although results of physical examination were normal, roentgen studies revealed a tumor mass pressing on the auricles and the posterior mediastinal structures.

3. Figure 5 is the tracing of a woman sent for radiocardiographic study as a normal control and presumed to be without heart disease. Her blood pressure and results of physical examination of the heart were normal. The radiocardiogram revealed a prominent L wave. A diagnosis was made of enlargement of the left side of the heart. Roentgen studies revealed an increased transverse diameter of the heart. Further investigation into her history disclosed that she had had hypertension in the past.

4. In the dyspnea of pulmonary insufficiency resulting from such conditions as emphysema, it is often difficult to determine to what extent, if any, associated heart disease is responsible for the clinical picture. In such instances a radiocardiogram is of great aid in revealing the presence or absence of abnormal cardiac dynamics. The employment of the circulation times for this purpose is subject to grave errors.[4]

5. In isolated dilatation of the left side of the heart, with or without dilated pulmonary veins, the L wave is widened and the descending limb is prolonged. The R wave is normal. We have repeatedly seen this pattern in aortic insufficiency and in hypertension (fig. 6).

6. In pure right-sided dilatation, the right ventricle will necessarily discharge the labeled blood slowly into the lungs and the flow to the left side of the heart would be correspondingly prolonged, even though the latter chambers are free of disease. Therefore, the observation of a low wide L wave in the presence of a wide R wave does not necessarily prove that the left chambers are also involved in the disease process. The radiocardiogram of a patient with severe emphysema is shown in figure 7. If both the right and left chambers are dilated, the prolongation of the left complex is greatly accentuated.

7. If the heart appears enlarged on the roentgenogram or physical examination, it may be possible to tell by this method whether or not the heart is merely concentrically hypertrophied or whether the chambers are excessively dilated and do not empty properly. In the former instance the curves have a normal configuration, whereas in the latter there is always decided distortion of the radiocardiogram; there is usually widening of the R or L wave with decided prolongation of the descending limb of the L wave. Thus, in 2 similar cases, although the caridothoracic ratio

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[3] Hamilton, W. F., and others: Comparison of the Fick and Dye Injection Methods of Measuring the Cardiac Output in Man, Am. J. Physiol. **153**: 309 (May 1) 1948.

[4] Corday, E., and Prinzmetal, M.: Unpublished observations.

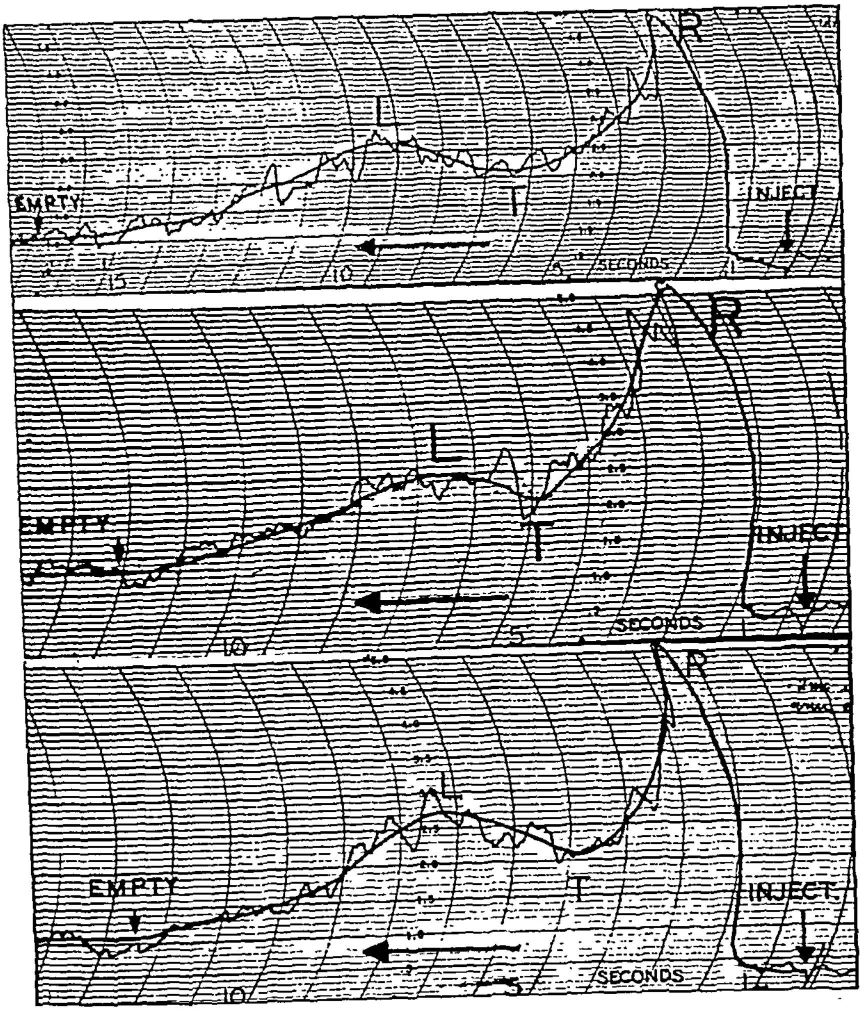

Fig. 2.—Radiocardiograms of 3 normal patients. All tracings read from right to left. Vertical lines are at one second intervals. The well defined R and L waves and *the transition point* (T) may be noted. The R wave represents blood going in and leaving the right side of the heart. The L wave represents blood going in and leaving the left side of the heart. The transition zone is the point where most of the blood is in the lungs.

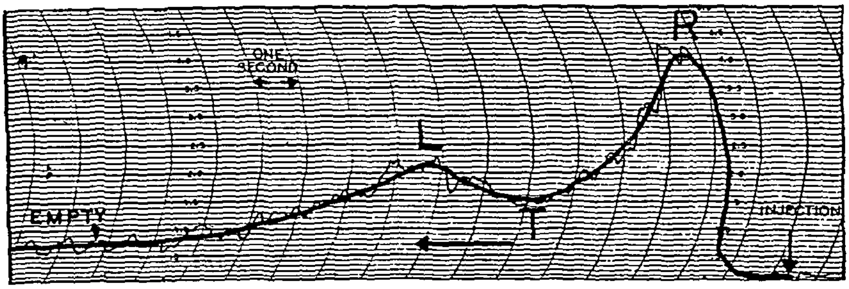

Fig. 3.—Radiocardiogram of P. M., a patient with emphysema, pulmonary fibrosis and severe edema of both lower extremities, which was diagnosed as heart failure. The radiocardiogram is normal. Subsequent examination revealed a normal heart and that lymphatic obstruction was the cause of the ankle edema.

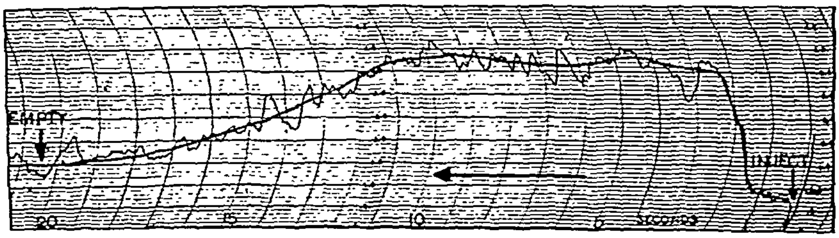

Fig. ' [illegible] ., a patient se[illegible] as normal co[illegible] of the radiocardiogram was seen, with fusion of R and L waves and prolongation of the L wave. Results of physical examination of the heart were negative. Lateral oblique roentgenograms revealed a large mediastinal tumor pressing on the posterior aspect of the heart.

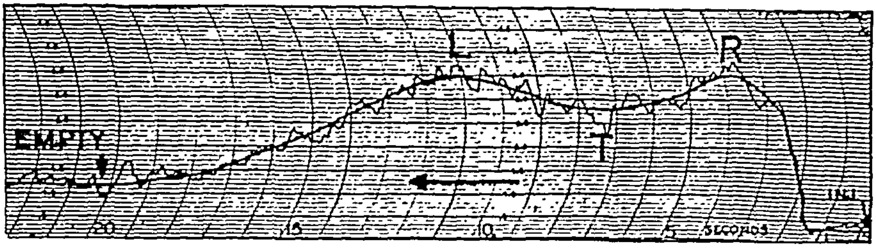

Fig. 5.—Radiocardiogram of L. C., a patient in whom no heart disease was suspected. Great prolongation of the L wave may be noted. Subsequent roentgen examination revealed enlargement of the heart, predominantly of the left ventricle.

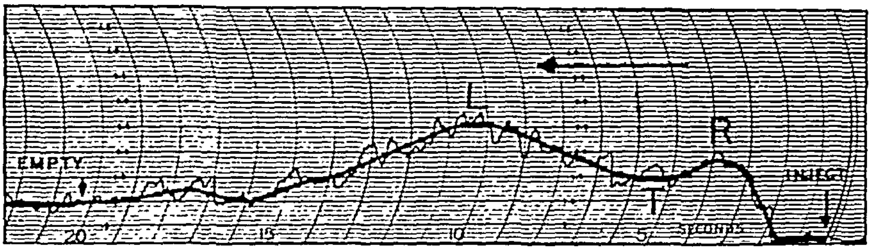

Fig. 6.—Radiocardiogram of I. G., a patient with aortic insufficiency and rheumatic heart disease. The L wave is of higher amplitude than the R wave and of abnormally long duration. This is characteristic of enlargement of the chambers of the left side of the heart. There is no evidence of failure.

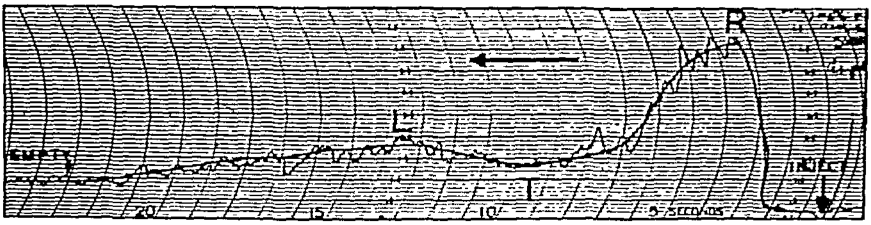

Fig. 7.—Radiocardiogram of M. S., a patient with pulmonary insufficiency, with severe emphysema and decidedly decreased vital capacity but no evidence of heart failure. The roentgenogram showed an enlarged heart. The bulk of the labeled sodium enters the right side of the heart rapidly, indicating that there is no obstruction between the site of injection and the right side of the heart; the descending limb of the R wave, however, is very oblique and of long duration, because the right side of the heart empties the labeled blood inefficiently. The L wave is shallow.

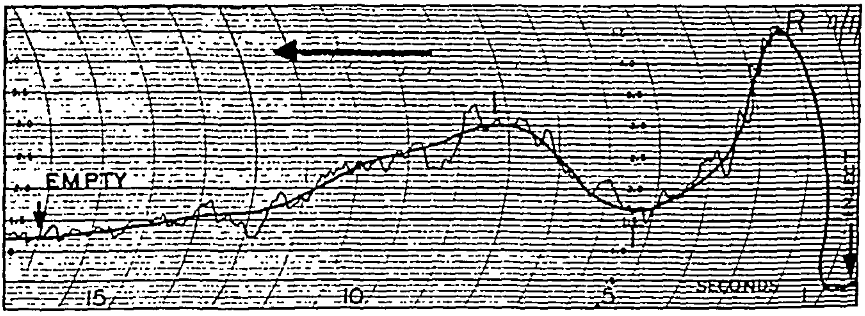

Fig. 8.—Radiocardiogram of I. S., a patient with rheumatic heart disease with aortic and mitral valvulitis, with no evidence of heart failure. The roentgenogram revealed left and right ventricular enlargement. There are a normal R wave, distinct transition point and a normal L wave, with good definition of each, denoting normal hemodynamics. Enlargement of the heart roentgenologically in the presence of normal hemodynamics is interpreted as concentric hypertrophy of the heart without dilatation.

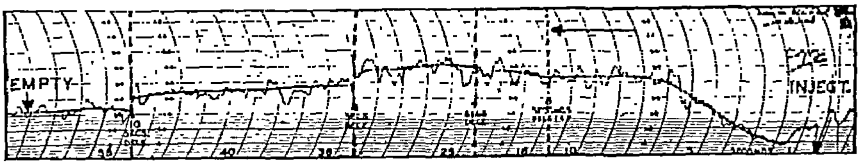

Fig. 9.—Radiocardiogram of A. F., a patient with congestive heart failure, arteriosclerotic heart disease and old myocardial infarction. The roentgenogram revealed bilateral pleural effusion and enlargement of both cardiac chambers. Slow filling of the right side of the heart, fusion of the R and L waves and the remarkable slow emptying of the left side of the heart may be noted.

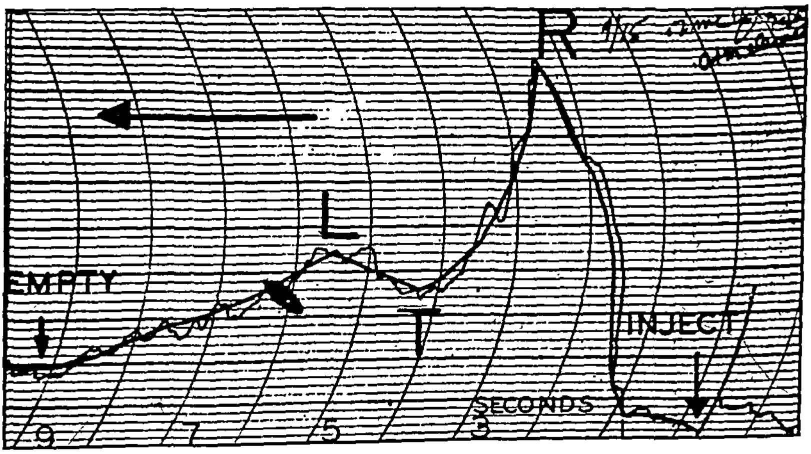

Fig. 10 (J. S.).—A case of thyrotoxicosis. All phases of the tracing are short.

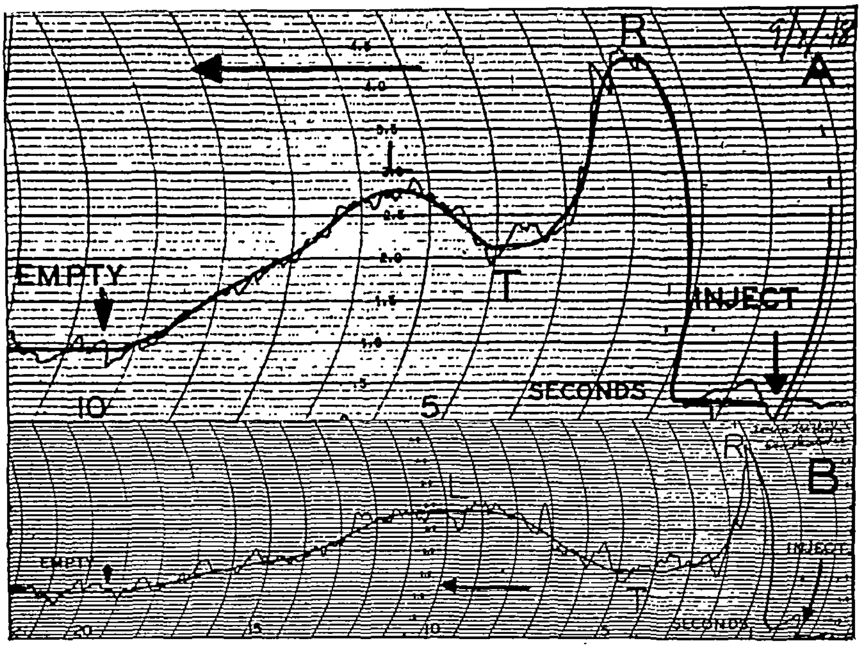

Fig. 11.—*A*, radiocardiogram of L. L., a patient with healed myocardial infarction; there is no evidence of heart failure; the radiocardiogram is normal. R and L waves are well defined and of normal duration, showing normal hemodynamics. The roentgenogram showed a normal-sized heart. *B*, radiocardiogram of A. E., a patient with recent myocardial infarction with recovery from congestive failure. At the time of reporting the patient showed no evidence of failure. The roentgenogram showed pronounced enlargement of the left side of the heart. Normal hemodynamics of the right side of the heart may be noted, but a greatly prolonged L wave, denoting a decidedly dilated left side of the heart.

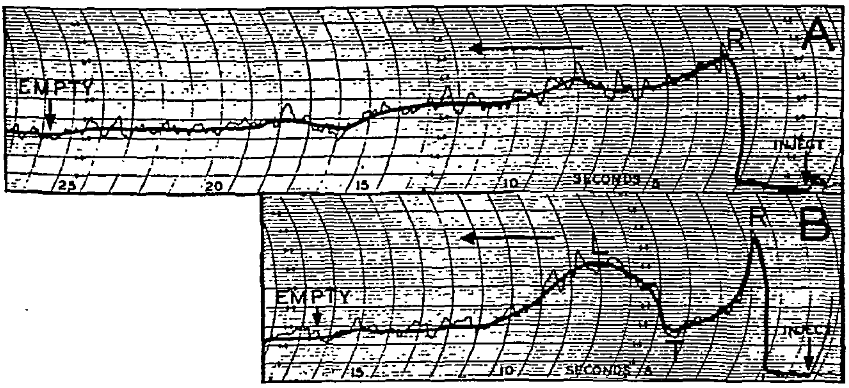

Fig. 12.—*A*, radiocardiogram of L. G., a patient with patent ductus arteriosus before surgical treatment. The R wave fuses into a greatly prolonged ill defined L wave. The L wave is prolonged because of shunting of blood from the left to the right side of the heart and recirculation. *B*, radiocardiogram of the same patient after operation, showing the well defined R wave, L wave and transition point previously not discernible. The L wave is *dome-shaped* and *slightly* prolonged, indicating some enlargement of the left side of the heart.

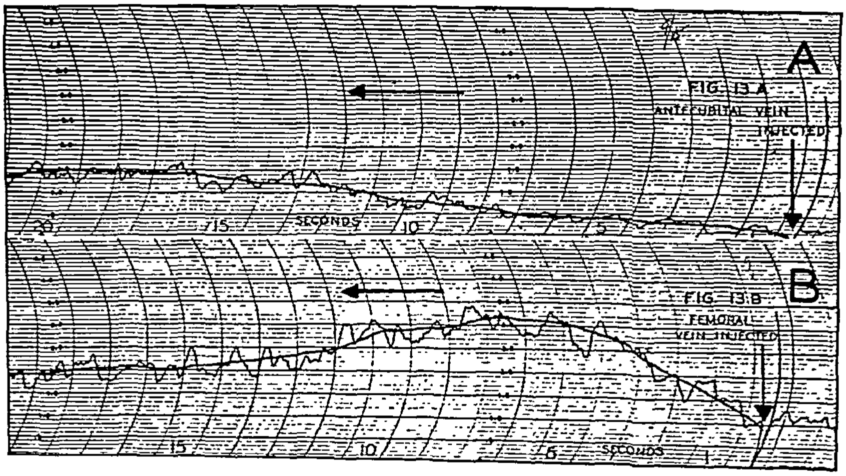

Fig. 13.—*A*, radiocardiogram of E. J., a patient with superior vena caval obstruction. Injection was made into the antecubital vein. The delayed and ill defined R wave denoted blocking of venous return. *B*, radiocardiogram of the same patient. Injection was made into the femoral vein. After injection the bulk of the labeled sodium enters the right side of the heart much more rapidly than after injection into the antecubital vein.

might be equally enlarged, observation of a normal radiocardiogram in one would indicate for that patient concentric hypertrophy (fig. 8) and hence a better prognosis than for the other patient, whose heart is no larger but whose radiocardiogram is abnormal.

8. In 2 patients with funnel chests, who exhibited no subjective symptoms, but whose hearts appeared distorted by both physical and roentgen examinations, we obtained normal radiocardiographic tracings. Thus, the revealed normal hemodynamics were in keeping with the absence of clinical symptoms.

9. We observed very early in the course of our examinations that patients with congestive heart failure had very wide radiocardiographic tracings, always with a decided prolongation of the L wave and generally with complete or incomplete fusing of the R and L waves (fig. 9). This subject will be discussed in other publications.

10. Radiocardiograms of adults with thyrotoxicosis and of infants and young children show that the sodium circulates through the chambers of the heart more rapidly than in normal adults (fig. 10).

11. Patients with old coronary artery disease with good cardiac function may have normal radiocardiograms (fig. 11 *A*), but when the heart begins to dilate there always develops a prolongation of the L wave (fig. 11 *B*).

12. Our observations on congenital heart disease have been very few; the usefulness of the radiocardiogram in this type of heart disease is yet to be proved. However, preliminary observations, in 2 cases, seem to indicate that in the tetralogy of Fallot the R wave appears normal but the L wave is absent or very shallow.

13. In cases with left to right shunt, the L wave appears to be abnormally enlarged. Figure 12 *A* is a radiocardiogram of a boy with patent ductus arteriosus. There is decided fusion of the R and L waves. After surgical closure the R wave became normal; there was good definition between the R and L waves and a well defined transition point appeared (fig. 12 *B*). The L wave, however, was dome-shaped and very prominent, suggesting that dilatation of the left side of the heart still persisted. This indicates that in such cases it takes some time for the enlargement of the heart to return to normal after surgical treatment.

14. This method is of value in the diagnosis of vena caval obstruction, superior or inferior. For this purpose comparative tracings were obtained after injections into the femoral and antecubital veins, respectively. By use of this technic in a case of obstruction of the superior vena cava it was found that the femoral vein injection gave a prompt rise of the R wave two seconds after injection, whereas after the antecubital injection it took about five seconds before the R wave began to appear, and its ascent was very gradual. This was interpreted as revealing a block in the superior vena cava (fig. 13).

## SUMMARY AND CONCLUSION

Radiocardiography offers a simple and safe method for the determination of the pumping qualities of the heart. The method is still in the experimental stage, but it has already yielded valuable information in the diagnosis of certain types of heart disease.

## ABSTRACT OF DISCUSSION

Dr. Gustav Nylin, Stockholm, Sweden: I admire this dynamic evolution using radioactive substances in studies of the circulation that Dr. Prinzmetal and his co-workers have done. It opens new possibilities for study. It is astonishing to see that it was possible to study the filling and emptying of both cavities separately. No one has done that before. Dr. Prinzmetal and his co-workers have given ideas and solutions to problems that I cannot grasp. I should like to give attention to that interesting phenomenon that they have shown, which they found typical in dilatation of the left ventricle. It takes rather a long time to empty the left ventricle in some conditions, and that is why I started my studies six years ago in labeling blood, because I tried to find out whether the substance was physiologic and connected with the blood elements. Then I confirmed my idea that the amount of blood in the heart played a great role. Somebody has said that my results were not right. However, Dr. Prinzmetal and his co-workers have confirmed my results, that there must be residual blood in the left ventricle so that the left ventricle does not completely empty during systole. The receivable blood plays a very important role in the mixing, and the work of Dr. Prinzmetal and his co-workers is very practical when used for studying pathologic cases, especially in congenital heart disease.

Dr. Willard D. Mayer, Detroit: How long do the patients manifest this radioactive activity? How long afterward will the Geiger counter show evidence of this isotope being in the system? Have there been over any period of time any harmful effects at all that have been noted with the use of this particular isotope?

Dr. Louis J. Vorhaus, Chicago: First, I am interested in knowing whether any studies have been done in high output types of failure. Second, I wonder whether Dr. Prinzmetal and his co-workers have done any studies on patients in congested failure, before and after treatment with digitalis.

Dr. Gustav Nylin, Stockholm, Sweden: I am happy to hear the question as to the danger in the use of the radioactive substances. We in Sweden have been very much interested in this question. We use 0.003 millicurie of radioactive phosphate. It is an extremely small amount. We are sure that such a small quantity should not be dangerous to use. We have followed our patients for weeks, and we have been able, a week after our observation, to find radioactive material.

Dr. Myron Prinzmetal, Los Angeles: Before starting this work, we consulted several experts in the field of atomic energy in California and elsewhere. Their opinion was unanimous that the amount of radioactivity we use is completely safe by all methods of estimation. Some investigators have used larger amounts without apparent harm. Twenty-four hours after injection, the patient has very little radioactive sodium, since sodium is rapidly excreted by the kidneys and has such a short half-life. This we determined by doing random counts over the body. In the near future we intend using more sensitive apparatus. This should allow us to perform this procedure with even less sodium 24. We have not as yet performed any studies on patients with high output types of failure, although we have studied many patients with emphysema. In the near future we hope to study the immediate effect of intravenously administered digitalis preparations on patients with congestive failure.

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**Names of Operations for Hernia.**—It is difficult enough for medical students and residents to understand the basic principles of the subject under discussion without being confused by the many terms applied to the same condition. It is my contention that in practically every branch of medicine and surgery too many proper names have been applied to certain diseases or operations. . . . The greatest confusion arises in discussing the types of operation used to repair hernias. Thus, we hear the names of Bassini, Halstead, Willys Andrews, Ferguson, Gallie, Wangenstein, MacArthur, Hotchkiss, Moskowitz, Blake, Mayo and many others applied to various procedures used to correct the condition.—Roland L. Maier, M.D., A Plea for Simpler Surgical Terminology, *The American Journal of Surgery*, January 1949.

# POSSIBLE HAZARDS OF HIGH FAT DIETS IN CORONARY DISEASE

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Brooklyn

It is the purpose of this paper to emphasize one of the problems confronting gastroenterologists in the management of the patient with coronary disease. There does not seem to be any special predilection for the development of peptic ulcer in persons with coronary disease, although some workers have stated the belief that there is.[1] In any case, since both diseases are common in men in the middle decades of life, it is not remarkable that cardiologists and gastroenterologists should be called on fairly frequently to treat patients having both conditions.

The main body of this paper is to be devoted to some hazards in the management of the patient with ulcer with the dietary regimen commonly employed in this country, a diet which contains large amounts of fat and cholesterol. I do not wish to be too dogmatic about the presentation of a subject which is still controversial, namely, the role of cholesterol in the pathogenesis of coronary disease. Indeed, it is not necessary to present this theory in detail. I shall present protocols with some tentative suggestions and allow the future to take care of definitive judgment and detailed explanation.

## CORONARY SCLEROSIS AND ARTERIOSCLEROSIS

Coronary sclerosis is somewhat *different from* arteriosclerosis of the vessels of the extremities which one commonly thinks of in connection with the term "hardening of the arteries." In the extremities it is a lesion involving mostly the media with very little thickening of the intima, especially in the early stages. On the contrary, coronary sclerosis starts as a thickening of the intimal layer, and throughout its course, even in its most advanced stages, nearly all of the disease is localized in the intima with involvement of the media as a late and comparatively unimportant process. The pathologic process then is an atheroma, and the disease is best referred to as atheromatosis rather than arteriosclerosis. One other point deserves attention: coronary atheromatosis is the only important disease of the coronary arteries; other lesions comprise less than 10 per cent of all cases and are clinical curiosities. In other words, if the patient has any disease involving the coronary arteries—angina pectoris, coronary thrombosis or myocardial infarction—one can be reasonably certain that one or more of his coronary arteries has atheroma.

## CORONARY ATHEROMATOSIS AND CHOLESTEROL METABOLISM

There is considerable evidence that there is some sort of connection between coronary atheromatosis and cholesterol metabolism. In the first place, the atheroma, especially in its early stages, consists almost entirely of cholesterol. Secondly, it is a matter of common clinical observation that in those conditions in which the level of blood cholesterol is elevated, the incidence of coronary atheromatosis is much higher. Such conditions are myxedema, diabetes, familial xanthomatosis and lipid nephrosis. A number of workers have reported, too, that even among patients with coronary disease who do not have any of these other diseases the blood cholesterol is elevated above normal.[2] It may be taken as fairly definite, therefore, that there is some sort of link between cholesterol and atheroma. What is not definitely established is whether the lipid content of the diet has anything to do with the deposition of cholesterol in the intima.

## OBSERVATIONS

The first group consists of 10 patients, all of whom died. Of these, 9 had peptic ulcer. In all cases the story was startlingly similar. All of the patients were male. The age range was between 38 and 55. In each case, the patient was known to have definite coronary artery disease, as shown by a history of typical angina pectoris, electrocardiographic changes or, as in 3 cases, a previous myocardial infarction. In each case, the patient died within seven months after being placed on a high fat diet. In 1 case, the patient had been put on such a diet to "build him up" after a severe infection of the respiratory tract. In the other 9, duodenal ulcer had developed and the patient had been placed on an ulcer diet which was very liberal in the use of dairy fat.

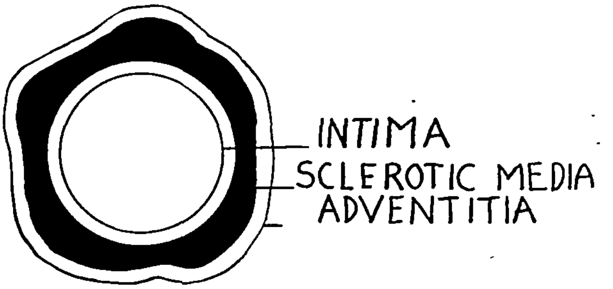

Fig. 1.—Medial sclerosis, a form of arteriosclerosis commonly found in arteries of the extremities but not in the coronary arteries.

A typical case was that of a machinist of 39 who had had typical angina pectoris for four years. He had had moderate hypertension and electrocardiographic changes consisting of an isoelectric T wave in lead 1. His attacks were not severe and were brought on by climbing two flights of stairs, walking briskly in the cold or by coitus. The seizures were not increasing in severity and did not interfere with his work in any way. The patient had typical symptoms of duodenal ulcer with hunger pain, most pronounced at night. The roentgenogram showed deformity of the duodenal cap and a questionable niche. The patient was then put on the type of ulcer diet commonly employed on the service of the hospitals with which I am associated and similar to that in use throughout this country, emphasizing especially the frequent ingestion of milk and cream. Although the hunger pains disappeared rapidly, within three weeks his anginal pain increased in frequency and intensity. Two months later the patient was suddenly seized with severe crushing pain in the chest and died in a telephone booth while calling for a doctor. Postmortem examination showed extensive atheromatosis of the left anterior descending coronary artery with thrombosis 1.5 cm. from the orifice.[3]

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Attending Physician, ater Memorial Hospitals.
From the Department nd College of Medicine.
Read before the Sect and Proctology at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

[1] Riecker, H. H.: Peptic Ulcer in Identical Twins, Ann. Int. Med. **24**: 878 (May) 1946.

[2] Boas, E. P.; Parets, A. D., and Adlersberg, D.: Hereditary Disturbance of Cholesterol Metabolism, Am. Heart J. **35**: 611 (April) 1948.

[3] Plotz, M.: Management of Combined Coronary Disease and Peptic Ulcer, Rev. Gastroenterol., **15**: 628 (August) 1948.

Another case was that of a furrier, aged 45, who had had typical angina pectoris for three years. His blood pressure was moderately elevated, 150 systolic and 100 diastolic. He had moderate squeezing pain substernally which radiated to the left arm on exertion or on exposure to cold. These attacks were mild, easily controlled by glyceryl trinitrate and did not interfere with his carrying on his affairs. The electrocardiogram showed evidence of myocardial damage in the form of intraventricular block. At the age of 45 the typical hunger pain of peptic ulcer developed, and roentgen investigation showed definite duodenal ulcer. This man was then put on a typical Sippy regimen with the frequent use of milk and cream. On this diet he quickly lost his symptoms of ulcer. Two months after he had started this diet, the angina pectoris grew gradually worse, and three months later the patient died. Postmortem examination showed atheromatosis of the left anterior descending coronary artery with thrombosis 1 cm. from the orifice.

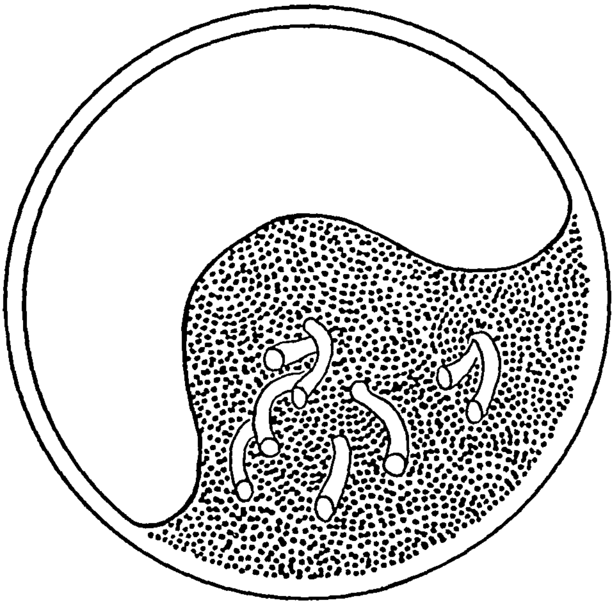

Fig. 2.—Atheroma of the intima, the lesion usually seen in coronary artery sclerosis.

A third case was that of a manufacturer of 52 who had had an anterior myocardial infarction at the age of 49. Following this episode, he had no angina or other symptoms referable to his heart and was able to carry on his work without interruption. During the past winter an infection of the respiratory tract developed, consisting of coryza and a mild sore throat which lasted for three days. At this time the patient, who had always been thin and wiry, came under the observation of a physician who had not treated him previously. In an effort to increase the patient's weight, the physician put him on a high calory diet in which the extra calories were given almost entirely in the form of dairy fat. The patient was advised to take ¼ pound (113 Gm.) of butter a day together with 8 ounces (237 cc.) of cream. The patient gained 5 pounds (2 Kg.) in six weeks. At that time a fresh coronary occlusion and an infarction of the posterior wall of the heart developed, and the patient died two days later.

There were six postmortem examinations performed. In four, consent was not obtained. In all cases, there was atheromatosis of one or more of the main coronary arteries. In 4, there was fresh thrombus; in all 6, there was myocardial infarction. The blood cholesterol was determined in only 3 patients and was over 320 in 2.

The second group consisted of 17 patients with known coronary disease in whom symptoms of peptic ulcer developed one or more years after the cardiac diagnosis was definitely established. These were all patients who were found by a systematic study of files of patients with peptic ulcer. None of these patients has died. All had been put on typical ulcer diets with frequent high fat feedings. In 12 of the 17, the symptoms of angina pectoris became much worse within a period of one to three months after the ulcer diet was started. Myocardial infarction developed in 3 of these patients.

## COMMENT

Any one who has made a statistical study of coronary disease knows how difficult it is to get comparable series of cases as controls. It would be necessary to obtain patients of the same age, sex, blood pressure and changes in the blood vessels. As a rough comparison, 17 patients with known coronary disease who had been placed on special diets for impaired gallbladder function were selected. Three months after starting their new diets, 2 of these had a deterioration of their cardiac condition, 1 of them a fresh myocardial infarction. This is in contrast with the series previously cited in which 12 of 17 patients were worse within three months after starting ulcer diets.

I realize that both groups of patients, the 10 that died and the 12 whose symptoms were made worse after starting high fat diets, are small and that conclusions cannot be drawn. Study of a large number of such persons may change these statistics. Nevertheless, the results are striking enough to warrant further investigation and to serve as a warning that high fat diets may be harmful to patients with atheroma of the coronary arteries. At this point, emphasis should be placed on what this paper does not attempt to prove. First, it should be noted that all of the patients had previous coronary disease and, therefore, a definite, even if only localized, disturbance in cholesterol metabolism. What the effect of high fat diets on persons with normal arteries would be I still do not know. I feel that, as a matter of elementary precaution, it would be wise to avoid the conventional ulcer diet in patients who are likely candidates for coronary atheroma, namely, those with hypertension, diabetes, myxedema, xanthomatosis and hypercholesterolemia. Secondly, from the data presented, one is not justified in assuming that a low cholesterol or a low fat diet would help a patient with coronary disease. Perhaps it will. What I am trying to show is only that a high fat diet may be harmful in such cases.

On theoretical grounds, there is some evidence that the cholesterol content of the diet has something to do with the formation of coronary atheroma.[4] Among certain races, like the Chinese and the Okinawans, whose diet is low in cholesterol, coronary disease is rare. The incidence of coronary disease diminished in Germany after the last war when the dietary fat was low. There were fewer coronary deaths in the British Army than among American troops with their higher fat intake. Wilens[5] has pointed out that there is less coronary disease among alcoholic persons who have some intolerance to fats. Lesions resembling atheroma in human beings may be produced in certain animals constantly and in others only under special conditions by the feeding of high cholesterol diets. To these bits of evidence may be added the cases presented herein.

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[4] Moreton, J. R.: Atherosclerosis and Alimentary Hyperlipemia, Science **106**: 190 (Aug. 29) 1947.

The evidence is far from complete, and the links in the chain are not all forged. Steiner[6] reported that he was unable to raise the blood cholesterol level in a small group of patients with coronary disease to whom he fed high cholesterol diets or to lower it in patients on low cholesterol diets. This evidence in turn, even if confirmed in a larger series, is not conclusive as far as the major thesis of this paper is concerned.

At this point, I should like to present another case to show that it may not be necessary to raise the blood level of cholesterol for a high lipid diet to be harmful. A man of 47 with both peptic ulcer and coronary disease came under my observation after the threshold of suspicion concerning the Sippy diet had become rather low. I constructed for him a diet similar to the one already in use, but containing negligible amounts of cholesterol. It had, however, about as much fat. Much to my chagrin, this man had a myocardial infarction two and a half months later. There was a similar occurrence in a man of 52.

These cases suggested the possibility that a diet high in fat and low in cholesterol might be just as harmful as one high in cholesterol. Moreton[7] advanced a hypothesis which may be of great importance. He presented evidence that high fat meals induce hyperlipemia, that the size of the lipid particles is comparable to that of particles known to produce arteriosclerosis experimentally, that the intima may take up these particles and "foam cells" may be found and that the triglycerides and fatty acids are more readily resorbed and removed than cholesterol, which remains as the "difficult-to-remove residue." "When this residue of inert and difficult-to-resorb cholesterol is thus trapped between the high-pressure blood column on one side and the internal elastic membrane on the other, it is withheld and prevented from being dispatched to the liver (and possibly other sites), where theoretically it could be relatively easily degraded or eliminated by cells that are specialized in such metabolic functions. Thus, the accumulation of lipids in the arterial intima seems to be a local, mechanical problem, and unrelated to general body balance or over-all metabolism of these substances." He advanced the theory that the cumulative effect of many fatty meals producing transient showers of large lipid particles in the plasma may be "the underlying cause of the intimal lipid deposition in human atherosclerosis," a theory which receives some support from the material presented here. Theoretically, too, even if there is no cholesterol in the meal, the lipid particles may carry with them cholesterol already in the blood stream or which is released in the bile used to digest these fats.

In any case, whether one accepts the "cholesterol theory" of the induction of atheroma or not, the evidence to date is such that one should proceed with caution in the prescription of high fat diets to patients with known coronary disease. To be more specific as far as gastroenterologists are concerned, another type of ulcer diet should be advised for such persons. It is my feeling, since frequent feeding seems to be the effective factor in the ulcer diet, that it be retained but that the diet be constructed so as to be low in fat content and especially low in cholesterol.

SUMMARY AND CONCLUSIONS

The role of high fat diets in the pathogenesis of coronary disease is discussed. Ten patients are presented in whom death followed within several months after starting a diet high in fat. All of these patients had previous coronary disease. In another series of 17 patients with coronary disease in whom peptic ulcer developed, the symptoms of coronary disease became worse within three months after a high fat diet was instituted.

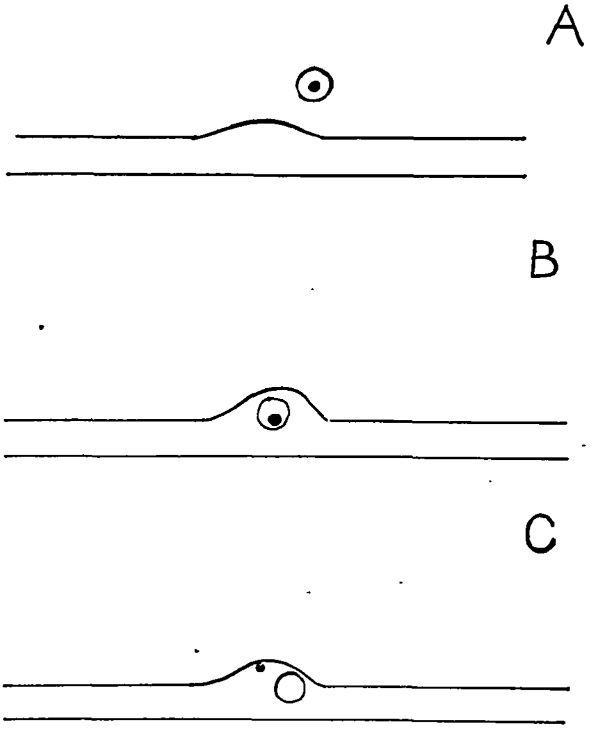

Fig. 3.—Highly schematic illustration of Moreton's hypothesis of the fate of lipid particles containing even small amounts of cholesterol. After the particle enters the intima (*B*), the neutral fats and fatty acids are removed, leaving the cholesterol (black dot) as the difficult to remove residue (*C*).

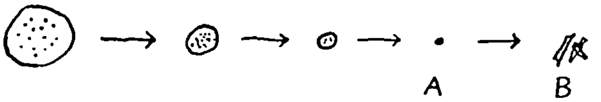

Fig. 4.—Moreton's hypothesis: Action of macrophages and tissue fluid enzymes on chylomicron, leaving cholesterol residue (*A*). Condensation of this residue from many chylomicrons to form cholesterol crystals (*B*).

There is no reason to believe that high fat diets injure persons with intact coronary arteries. The initial atheroma probably consists of endogenous cholesterol.

A high fat diet, even if low in cholesterol content, may be harmful. The possible mechanism is discussed. The use of a high fat diet in persons with coronary disease may be harmful. In such patients, an ulcer diet should consist of frequent feedings with low fat content.

1120 Church Avenue (18).

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[5] Wilens, S. L.: Relationship of Chronic Alcoholism to Atherosclerosis, J. A. M. A. **135**: 1136 (Dec. 27) 1947.

[6] Steiner, A.: Significance of Cholesterol in Coronary Arteriosclerosis, read before the Medical Society of the State of New York, New York, May 21, 1948.

[7] Moreton, J. R.: Physical State of Lipids and Foreign Substances Producing Atherosclerosis, Science **107**: 371 (April 9) 1948.

## ABSTRACT OF DISCUSSION

**Dr. Louis N. Katz**, Chicago: For the past dozen years my associates and I have been devoting more and more of our energies to the problem of arteriosclerosis. My associate, Dr. Schlichter, has shown an inverse relationship between the ease of development of arteriosclerosis of the aorta in various species of animals and the vascularity of its walls. Thus in the chicken, in which aortic arteriosclerosis is readily produced, the vascularity is poor; in the dog, in which arteriosclerosis is difficult to produce, the vascularity is good. Other work done with the help of the late Dr. Dauber, Dr. Horlick and Dr. Stamler has left no doubt that in the chicken, which is omnivorous, high cholesterol feeding and high fat feeding will produce arteriosclerotic lesions similar to those occurring spontaneously in this species and in human beings. We have been able to show that the amount of arteriosclerosis is related to the quantity and the duration of the cholesterol feeding. It might therefore be argued that high cholesterol diets play a significant role in the production of arteriosclerosis. This seems to be substantiated by a study we have just completed on the effect of feeding a nearly fat-free diet to chickens which resulted in a reduction in the amount and frequency of arteriosclerosis. At first glance this would support the concept that dietary cholesterol is the important element in arteriosclerogenesis. But many chickens which received practically no exogenous cholesterol or lipid still showed some arteriosclerosis. True, the frequency and extent of arteriosclerosis was reduced, but, on the other hand, arteriosclerosis unquestionably developed in these chickens from endogenously produced cholesterol. Thus, it would seem that the prohibition of cholesterol or fat in the diet does not prevent the occurrence of experimental arteriosclerosis. From the evidence presented by Dr. Plotz, one must admit that 36 cases may not be a fair random sample. In fact, the problem of the relation of high fat diet to arteriosclerosis would have to be studied by a survey of several thousand cases adequately controlled and preferably carried out by a group of persons from different institutions before one could arrive at a clinical judgment. Dr. Plotz has raised an important question, but it seems to me that in the present state of knowledge one should not be deterred from using a high fat or high cholesterol diet, provided that there is an indication for its use. Furthermore, I cannot subscribe to the limitation of fat and cholesterol in the diet for the prevention or alleviation of arteriosclerosis except in limited cases, even though this prohibition has recently obtained ardent advocates. Finally, on the effect of a change in diet, it seems to me, on the basis of animal experiments, that it should take more than two to three months to produce arteriosclerosis in human beings.

**Dr. Walter L. Palmer**, Chicago: I agree with Dr. Katz that Dr. Plotz's conclusions do not seem justified by the evidence presented. After all, there are three common diseases; peptic ulcer, arteriosclerosis and hypertension. It is to be expected, therefore, that the coincidence of these three diseases will be great. I should like to ask Dr. Plotz whether he has measured the effect of low fat and high fat diets on the serum lipids. Some years ago, in dealing with a patient with xanthomatous biliary cirrhosis of the liver, and with an extremely high level of blood lipid, I set about with great enthusiasm to reduce these levels by means of an extremely low fat diet. The results of my efforts were disappointing. As a result of this, it seemed necessary for me to conclude, as Dr. Katz has indeed concluded, that the ability of the organism to synthesize lipids from nonlipid food is great and that there is therefore much more to this problem than lowering the fat intake.

**Dr. Milton Plotz**, Brooklyn: Strangely enough, I do not find myself in complete disagreement with Dr. Katz. I should like to point out that in a sense my patients had already performed a cholesterol tolerance test on themselves with positive results; in other words, I started out with patients who were known to have coronary disease. I was not starting out with chickens, as Dr. Katz did, that presumably had normal arteries. As I said before, I have not the slightest idea of what the effect would be of feeding a high fat diet to a patient who had normal coronary arteries. However, my patients did not fall in that category. They were patients who already had known atheroma and had already demonstrated the fact that they could not synthesize normally either endogenous or exogenous cholesterol. Dr. Katz put his finger on the central part of this problem, which Dr. Palmer did not answer, and that is: Are high fat treatments necessary in peptic ulcer? In talking with different gastroenterologists I have been led to believe that it is the frequent feeding that is important and that it is not necessary to add large amounts of fat to the ulcer diet.

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# MANAGEMENT OF PATIENTS UNDERGOING URETEROINTESTINAL ANASTOMOSIS

## Preoperative, Operative and Postoperative Measures

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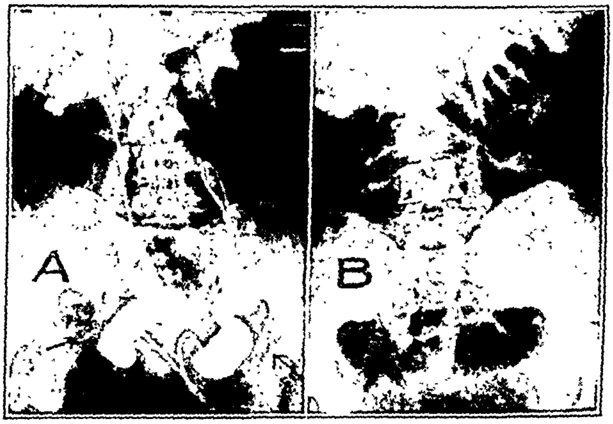
Safe ureterointestinal anastomosis widens the scope of treatment of certain congenital anomalies of the bladder and urethra and also makes possible more adequate treatment (radical or palliative) of three common types of carcinoma: carcinoma of the urinary bladder, of the prostate and of the female genital organs. Several recent developments have so greatly increased the safety of this operation that, in a recent series of 35 patients over 40 years of age with carcinoma in the aforementioned locations, only 1 death occurred and the only complication associated with the operative procedure was infection of the urinary tract, which occurred in only 6 per cent of the patients and was easily controlled with antibiotics. Also it was possible to perform ureterointestinal anastomosis safely on decidedly dilated ureters (figure). These developments include: (1) great improvement in the maintenance of nutrition in the preoperative and postoperative periods, (2) the use of the newer antibiotics and (3) the recognition of the role of maintenance of the blood supply in the wall of the bowel and ureter in the determination of the fate of the region of the anastomosis. This paper gives in detail the preoperative, operative and postoperative measures used to preserve adequate general nutrition, to control infection in the bowel and urinary tract and to prevent ischemic necrosis in the region of the anastomosis.



Case of extrophy of the bladder with pronounced bilateral hydroureter transplanted successfully by the method described. *A*, before operation. *B*, intravenous pyelogram after operation. (Permission of Dr. Oscar Carter.)

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### PREOPERATIVE MANAGEMENT

The management prior to ureterointestinal anastomosis takes from four days to several weeks, and its purpose is threefold: (1) to promote the general nutrition of the patient, (2) to prepare the bowel for the procedure and (3) to eliminate infection of the urinary tract, if possible.

The promotion and maintenance of general nutrition are extremely important, since many of the patients are in the upper age groups and have the secondary anemia and hypoproteinemia associated with their age and disease. These conditions interfere with healing at the point of anastomosis, which in turn leads to leakage and peritonitis or scarring which later causes hydronephrosis and pyelonephritis. The measures which have been used in this series of 35 patients include: (1) correction of the anemia and hypoproteinemia by the use of blood transfusions, (2) infusions of blood plasma and (3) a low residue–high protein liquid diet. The diet is supplemented by multivitamin capsules, 1 capsule four times daily, and vitamin K (menadione sodium bisulfite [hykinone®]), 4.8 mg. intramuscularly twice daily. The latter is used in order to counteract the destruction of the organisms in the bowel by the succinylsulfathiazole, since the organisms are supposed to synthesize vitamin K. Vitamin C, 200 mg. three times a day, is also given. A daily fluid intake of approximately 3,000 cc. is maintained. With this regimen the nutrition can be raised to an adequate level and maintained at such a level.

For four days prior to the operation, measures are instituted to obtain as clean a lower bowel as possible. On the first of the four days the patient is given 30 cc. of castor oil and placed on a low residue diet. Soapsuds enemas are given until the eliminated fluid is clear. On the following three days the low residue diet is continued and enemas, as aforementioned, are repeated each day. At the same time 1 Gm. of succinylsulfathiazole is given four times daily. Streptomycin, 0.5 Gm. in milk, is given four times daily. It has been shown in our patients that succinylsulfathiazole definitely reduces the bacterial count of the stools. The addition of the streptomycin did not make much difference in the bacterial count of the stools. It has been added, however, on an empiric basis. The morning of the operation, the lower bowel is thoroughly irrigated with sodium chloride solution and a rectal tube is left in place. A Miller-Abbott tube is introduced the night before, and the tip is allowed to go into the jejunum; this makes possible the control of distention postoperatively and the immediate intake of fluid nutrition by mouth.

The infection of the urinary tract is best controlled by the administration of 100,000 units of penicillin intramuscularly every three hours and any local treatment that may be indicated in the individual patient.

### OPERATIVE MEASURES

There are many types of operation for creating a ureterointestinal anastomosis, but all, in order to be successful, must avoid damage and scarring of the ureterocolic junction by following certain principles. The blood supply within the bowel and ureter at the point of the anastomosis must be preserved. The accomplishment of this (in my opinion) is the most important reason for the greatly improved results which are being obtained. I have shown that a satisfactory way to preserve the ureteral blood supply is to maintain the ureters intact for ten to twelve days after the completion of the anastomosis, thus permitting the operative area to obtain blood from the ureteral arteries both above and below the region of the anastomosis.[1] Marshall[2] and Ferris[3] have emphasized the importance of eliminating compression of the ureter by avoiding tight sutures about it as well as the need for not stripping the ureter of its adventitia in order to maintain its blood supply. Marshall, Lowsley and others have stressed the need for maintaining the blood supply in the bowel wall and have made a bed in the sigmoid by the combination of sharp and blunt dissection in such a way that tearing across the blood vessels is minimal. Tension at the point of anastomosis has been prevented by bringing the bowel to the ureter and keeping it there by tacking it to the parietal peritoneum. The importance of this has been stressed by Jewett.[4] Infection at the point of the anastomosis is prevented by keeping the bowel as clean as possible and by avoiding contamination of the area by bowel contents. It is my opinion that this can be reduced to a minimum through the maintenance of adequate circulation at the point of anastomosis: if adequate circulation is not present infection cannot be prevented. Obstruction of the ureter is eliminated by avoiding compression with sutures and by the use of indwelling ureteral catheters or T tubes. Late obstruction is due to excessive scarring which results from ischemic necrosis with infection of the ureterocolic stoma. The adoption of measures to maintain circulation in the ureter and bowel, with the avoidance of infection, tension and obstruction to the outflow of urine, will produce a good result and avoid late obstruction.

### POSTOPERATIVE MANAGEMENT

It is important to maintain good nutrition postoperatively in order to obtain rapid healing. In this connection, it has not previously been emphasized that the use of the Miller-Abbott tube with its weighted tip in the jejunum is extremely valuable. Its advantages are twofold: first, in combination with a rectal tube it will control abdominal distention and thus prevent tension on the lines of suture and compression of the small vessels in the walls of the bowel and ureter at the operative site; second, it makes possible the use of a high protein nonresidue liquid diet within twenty-four hours after the operation. This diet can be given by mouth and for the most part will be absorbed in the stomach and duodenum and first part of the jejunum. The unabsorbed portions will wash back through the Miller-Abbott tube and thus cannot cause difficulty in the lower bowel. For the first twenty-four hours after the operation water is given by mouth as tolerated and is supplemented intravenously by 500 cc. of citrated blood, 600 cc. of dextrose and 800 cc. of isotonic sodium chloride solution. On the following day the high protein nonresidue liquid diet is started and is supplemented by 800 cc. of isotonic sodium chloride solution and 800 cc. of 5 per cent dextrose given intravenously. Multivitamin capsules are given by mouth, 1 capsule four times daily; 200 mg. of vitamin C are given three times daily, and vitamin K is given twice daily, as it was given preoperatively. On the third and fourth days the procedure is essentially the same. A rectal tube is inserted immediately after

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1. Flocks, R. H.: New Method of Ureterointestinal Anastomosis Before Total Cystectomy for Carcinoma of the Bladder, Canad. M. A. J. 56: 259-263, 1947.
2. Marshall, V. F.: Ureteral Transplantation and Cystectomy, J. Urol. 58: 244-249, 1947.
3. Ferris, D.: Personal communication to the author.
4. Jewett, H. J.: Uretero-Intestinal-Implantation: Experimental and Clinical Results with a New Method, South. M. J. 35: 1-11, 1942.

not always obtained in full for all patients in this series, but in enough to warrant the importance of multiple points in evaluation; in all cases at least seven and in over half eight or nine were available. These will be taken up separately in more detail. In addition to these ten criteria, each patient was given at the onset of the investigation a neurologic and physical examination.

Table 1.—*Duration of Treatment with Parpanit®*

| Duration (Mo.) | No. of Patients |
|---|---|
| Over 12 | 1 |
| 9 to 12 | 10 |
| 6 to 9 | 9 |
| 3 to 6 | 22 |
| Under 3 (failures) | 8 |
| New patients not included in report | 17 |

## CRITERIA FOR JUDGING EFFECT OF TREATMENT

1. The subjective report of the patient: The patients were seen frequently during the first three months. On each visit a detailed report of how the patient felt, what percentage of improvement he would assign to himself over his previous medication and no medication and an account of the side effects or other subjective symptoms was taken.

2. The report of relatives: These were obtained on every visit on which a relative was present and included an estimate of the percentage of improvement. Many persons are unable to give their impressions in exact percentages, but could usually say whether the improvement was 10, 20, 30 or 50 per cent. The general mood and attitude of the patient toward his disease and toward other persons was picked up in this way, and it was usually clear in the cases in which there was improvement that this impression was shared equally by relatives and friends.

3. Appearance and posture: The appearance of the patient to the examining physicians in the investigation was noted at each visit. This was a general impression, of course, which was difficult to quantitate. Such items as vigor of the voice, appearance of the face, expression and mood, were included in this assessment. In addition, an effort was made to quantitate the amount of abnormal posture by dropping a plumb line from the external auditory meatus to the floor when the patient was standing in his usual position. In the patients who were overflexed as a result of their disease this plumb line would fall in front of their toes or in the region of their toes. Improvement in posture could be measured by the amount of displacement of the line toward the posterior part of the foot.

Table 2.—*Points Noted in Evaluating Results in a Case in Which Treatment was Successful and a Case of Failure* *

| | Points Evaluated | Case of Success | Case of Failure |
|---|---|---|---|
| 1 | Subjective report of patient | + | 0 |
| 2 | Report of relative | + | 0 |
| 3 | Appearance and posture | + | 0 |
| 4 | Performance in daily life | + | — |
| 5 | Neurologic examination | 0 | 0 |
| 6 | Electromyogram | + | — |
| 7 | Movement rate and gait | + | 0 |
| 8 | Handwriting | 0 | 0 |
| 9 | Placebo and substitution effect | + | 0 |
| 10 | Opinion outside medical observer | + | 0 |
| | | 8 | —2 |

* The pluses show clearly in the successful case, and the failure is equally definite; +, better; 0, no change, and —, worse.

4. Performance and daily life: Both patients and relatives reported on this. They included such data as the patient's ability to shave, feed and dress himself and changes as a result of medication in these tasks. Data about hobbies, exercise, walking, stair climbing, working and sleeping were all recorded in each case. For example, a patient might state that since receiving parpanit® he could get in and out of the bathtub himself, which was previously impossible, and this report might have to be compared with that of another patient who felt he could turn over in bed more easily than he could previously. Quantitation between patients was therefore most difficult, but the individual changes that were either favorable or unfavorable were usually clear.

5. Neurologic examination: This included passive swinging of the patient's arms from alternate rotation of the shoulders while the patient was standing, assessment by the examiner of the "feel" of resistance on passive motion of the joints, presence and amount of cogwheeling in each joint, amount of the tremor present and amount of resistance in head motion to passive movements.

6. Electromyograms: Electromyograms were done in all cases, and the technic was constant for all examinations. Four pairs of surface electrodes were placed over the muscles of the limb that was being examined, so that four separate muscles could be tested at the same time. The output from these four sets of electrodes was fed into a standard Grass electroencephalograph and the discharge recorded at a paper speed of 6 cm. per second. The output of one set of electrodes was, in addition, fed into an integrating voltmeter which had been previously calibrated so that the integrated voltage for a fixed period of time could be indicated on the electromyograph paper by clicks from a signal pen.

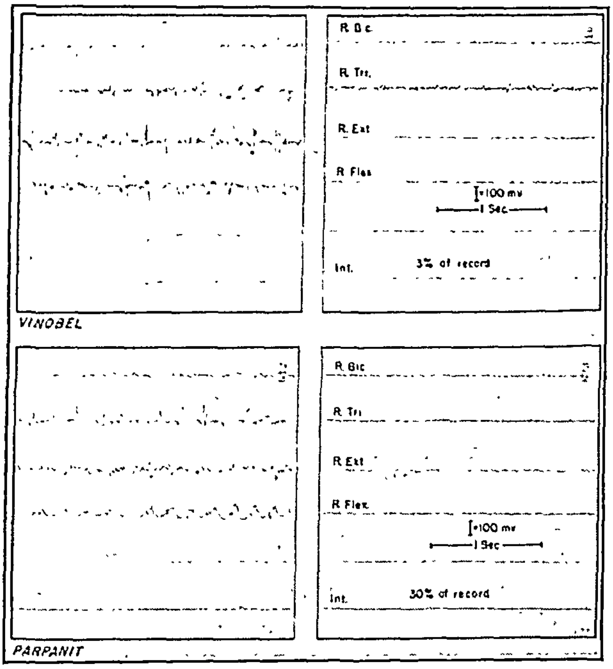
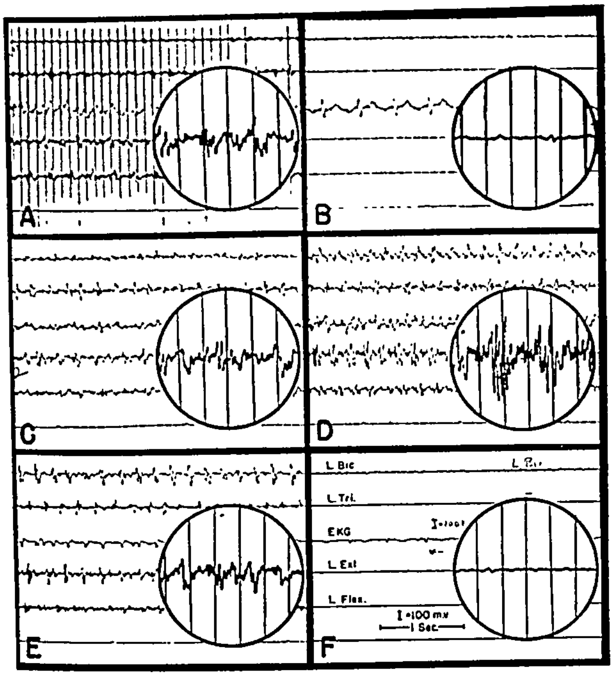


Fig. 2.—The electromyogram in a typical case (Dr. G. with postencephalitic parkinsonism) stabilized on vinobel® (contains alkaloids of belladonna root obtained by extraction with wine) compared with that stabilized on parpanit®. The upper left chart shows a sample of the worst part of a five minute run with the patient taking vinobel® and the right upper chart a sample of the record with the minimal resting activity. Minimal activity occurs in this case only 3 per cent in time in this record. The left lower chart shows the worst part of an identical observation in the same patient during a five minute run while receiving parpanit®. The right lower chart shows the minimal activity, which occurs for 30 per cent of the time. Amplifier gain, electrode placement and position of the patient are identical in both examinations.

The electromyographic examination consisted of two parts:

A. A five minute resting period, with the patient sitting in the identical position on each visit, in the same chair, with the same electrode placements. No effort was made to relax the patient or disturb him during the period of resting observation. The amount of discharge, whether it be from tremor or the rigidity of the muscles, appeared then in four muscles during this period. The muscle that was quantitatively integrated during this period was always the same one in an individual patient.

B. Passive flexion, extension, pronation and supination of the resting muscles while the electromyogram was being recorded. In the assessment of the electromyogram there were three sets of data that could be brought out besides the general appearance of the record: (1) the number of clicks per five minute period from the quantitation of the integrator, (2) the number of seconds in the five minute period of minimal activity in relation to the total three hundred second time and (3) the amount of discharge from passive motion. An example of the difference in electromyograms in a case in which the condition was successfully treated with parpanit® is shown in figure 2. We have also observed, both clinically and in the electromyogram, the effect of intravenous administration of parpanit® (9 cases), comparing it with scopolamine and isotonic sodium chloride solution given intravenously under standardized conditions. Scopolamine, ⅟₅₀ grain (1.2 mg.) given intravenously, eliminated the tremor but produced confusion and drowsiness. Isotonic sodium chloride solution had no effect, while 50 mg. of parpanit® eliminated the tremor and, in this case, produced no untoward symptoms or signs (fig. 3).



3.—The electromyogram in an [illegible] postencephalitic Parkinson's disease) during [illegible] of scopolamine, isotonic sodium chloride solution and parpanit® on three different days. On the left hand of the chart, the tracings before the injection show discharges from four muscles and electrocardiogram at rest. The circular insert represents an enlargement of three diameters of the electromyogram from the extensor muscles of the wrist (line 4 on all charts) to bring out the detail which was superimposed over the corresponding point in the photograph. On the right is the electromyogram after the intravenous injection of the three drugs mentioned. All amplifier gains, electrode placements and position of the patient are identical and calibrations are on the lower right. Scopolamine A and B, ⅟₅₀ grain (1.2 mg.) eliminates tremor but produces confusion and drowsiness. Isotonic sodium chloride solution (5 cc.) causes no effect (shown in C and D). Parpanit®, 50 mg. in 5 cc. sterile water, also eliminates the tremor and does not affect consciousness, as shown in E and F.

7. It was felt that some quantitation of the rate of voluntary movement should be measured at each visit. A simple counting device was set up consisting of two insulated electrodes, one placed on the index finger and the other on the thumb. These two electrodes were connected to a low voltage counting device. The patients were instructed to touch alternately the two electrodes together and then open fully the two digits as fast as possible for a period of ten seconds (stop watch). The number of clicks per ten second period appearing on the counter were then calculated for each second, and the data for each hand were called the right and left finger-thumb rate (F. T. R.). In addition, the patient's usual gait was measured over a 10 meter distance, and this rate was timed with a stop watch and reduced to meters per second.

8. A sample of handwriting was obtained from every patient on each visit and was available for comparison.

9. Placebo and substitution effect: This was stressed in the introductory paragraph as an important criterion for successful evaluation of the new drug. It was arranged in the following manner in this investigation:

After the patients had been initially adjusted to the tablets of the new drug, they were told that further alterations in dosage were necessary and that this would be arranged by giving them capsules of different strength. These capsules were made up in the hospital pharmacy identical in size and appearance and were labeled parpanit® A, B, C and up to H. Parpanit® A, D, F and G contained parpanit® compound, 25 mg., 12.5 mg., 100 mg. and 75 mg., respectively. Parpanit® B contained scopolamine, 0.6 mg. Parpanit® C was the placebo containing calcium lactate. Parpanit® E contained stramonium, 500 mg., and parpanit® H 100 mg. of stramonium. These capsules, owing to the color of the stramonium, would appear slightly different from the parpanit® and in one series of observations a parpanit® capsule containing 50 mg. of the drug was colored artificially with mint leaves in order to appear like the stramonium capsule, but otherwise the tablets were identical in appearance. The method of the placebo trial was to substitute the parpanit® capsule for the tablet, then switch to the placebo, then back to a parpanit® capsule, then to the capsule containing the drug that the patient received prior to his investigation and then back to a parpanit® capsule. It was planned that the patients should take the different capsules for periods of four to seven days each. A comparison of how this therapy works is shown in figure 4, and it is seen that the placebo effect is specific in both patients and that the substitution of the former drug in the place of the parpanit® produces a disturbance in the welfare of the patient who is dependent on parpanit® and a slight rise in the patient in whom parpanit® produced no benefit. It is important at this point to stress the disagreeable results of placebo substitution; after we had clearly established its benefit in the first 20 cases, we eliminated this disagreeable test in the remainder. Patients who were doing well with parpanit® and were happy with the improvement would suddenly find on switching unknowingly to the placebo that not only had all of their symptoms returned suddenly but that they were overwhelmed by the notion that the medicine had suddenly become unsuccessful or that their disease had a severe exacerbation. Invariably frantic telephone calls on the part of the patient or relatives within a day or two would confirm the positive placebo effect, and we would allow the patient to resume treatment with parpanit.® It was not usually necessary to continue treatment with the placebo for more than one or two days. Some of the patients were so disturbed by this placebo effect that they were clinically set back and required several weeks of readjustment and the promise that the test would not be repeated in the future. All patients understood the necessity for this test and bore no ill will toward the investigators, but it is a very drastic method in severe chronic illness to ascertain the effectiveness of a medication.

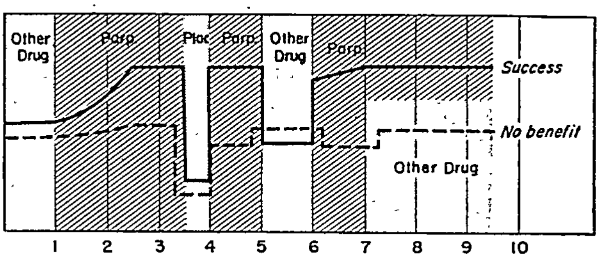


Fig. 4.—The comparative trend of the effects with other drugs (the usual antispasmodics, as scopolamine and belladonna), parpanit® and placebos. The horizontal line and figures represent the time in weeks and the vertical line the aggregate of effects that for obvious reasons cannot be numerically evaluated, but only roughly indicated as on chart. The unbroken line represents successful treatment in a case and the broken line unsuccessful treatment in another case.

10. Wherever we could, which was in over half the patients, we obtained the opinion of an outside medical observer as to how the patient was progressing. In some cases this was the referring neurologist, but in most of them it was the family physician. We felt that this was important to strengthen the medical impression as to the success or failure of this compound.

Table 3.—*Evidence of Overdosage*

| Symptom | No. of Patients |
|---|---|
| Giddiness | 20 |
| Nausea, epigastric burning | 6 |
| Weakness or light feeling in legs | 4 |
| Floating feeling (unreality sensation) | 5 |
| Headache | 2 |
| Excess perspiration | 1 |
| *Dryness of mouth* | 1 |
| Blurred vision | 2 |
| Severe constipation | 1 |

## ADMINISTRATION

In all cases parpanit® was given by mouth, in tablet form. Treatment was started with the new drug in one of two ways. If the disease was moderate or mild and the patient had not had severe symptoms previously while receiving no medication, their usual medication was stopped abruptly and treatment with parpanit® was started. The other method was used in cases of severe disease or patients that would be severely affected by no medication at all for a short period of time. These patients had their regular medicine gradually reduced over a period of three or four days while the parpanit® was gradually increased. The method of administration was as follows: Patients were told to take ¼ tablet (12.5 mg. of parpanit®) every three hours during the day for the first day. This was increased to ¼ tablet and ½ tablet (25 mg.), alternating every three hours on the second day, and further increased to ½ tablet every three hours on the third day. Incremental increases of this order continued until the patient showed definite evidence of overdosage, such as mild dizziness or other symptoms mentioned in table 3. Then he was instructed to reduce the dosage to a level that would not produce the toxic symptoms. It was usually possible to get the dose up to the maximum tolerable amount within a week or ten days. In some patients who seemed sensitive to the drug, a longer time was taken to reach this level. In patients who showed no toxic symptoms and benefit that was not sustained during the three hour period, dosage was alternated so that the tablets were given every two hours. Patients were carefully instructed to discontinue the medication if any severe reactions occurred. It was soon evident that the action was short lived and that a two or three hourly dosage was necessary throughout the day. Taken on a fasting stomach, parpanit® proved likely to cause nausea or a burning sensation in the epigastrium. Tablets taken after food or with 2 glasses of water did not cause this symptom.

Dosage has ranged from 90 to 600 mg. per day, given in divided doses, preferably every three hours, but at most every two hours. The average dose we find to be from 200 to 400 mg. per day, which represents one 50 mg. tablet five times a day. There is a wide range of individual variation in the tolerance to parpanit®; the reason for this is not clear at the moment.

Toxic effects, by the nature of the method originally employed by us, described in a previous paragraph, were frequent and occurred in two thirds of the patients. However, in only one fifth of the group was it necessary to stop treatment on this account. The commonest complaint was of "giddiness"—a sensation of lightness or "swimminess" in the head, with no vertiginous elements. Nausea and epigastric "burning" were next in order, with other complaints of a feeling of lightness of the legs, or a sensation of floating (table 1).

## CASE MATERIAL

Bedridden and institutionalized patients were not accepted for treatment, all cases being referred from the practice of the Massachusetts General Hospital. Twenty-one of the 50 patients were referred to us through successfully treated patients or their relatives. In 40 per cent of the group symptoms had been present from one to five years, in 32 per cent from five to ten years and in 28 per cent over ten years. There was a fairly close correlation between the duration of symptoms and the severity of the syndrome. Of the 50 cases, the condition was postencephalitic in nature in 38 and arteriosclerotic in 7 and in 5 it was considered to be paralysis agitans. All had been treated with one, or all, of the substances available for this condition.

## RESULTS

The results to date may be seen in figure 4. In 62 per cent of the cases parpanit® proved to be the drug of choice as compared with the usual range of substances available for the treatment of this condition; 16 per cent of the group were worse while receiving parpanit,® and in the remaining 22 per cent the effect of the drug was similar to that experienced with scopolamine or stramonium.

As for the diagnostic groups, parpanit® would appear to be equally valuable in postencephalitic parkinsonism and paralysis agitans, but of doubtful value in parkinsonism associated with arteriosclerotic disease. Patients in this group were unable to tolerate the drug.

The improvement is mainly subjective, rarely exceeding a 25 per cent level. Rigidity in particular is diminished, resulting in an increased freedom and speed of movement, with greater ease in feeding and talking. Tremor is diminished, but this change is less striking than the diminution in rigidity—although numerically approximately one half of the group noticed a decrease in tremor and one half a decrease in rigidity.

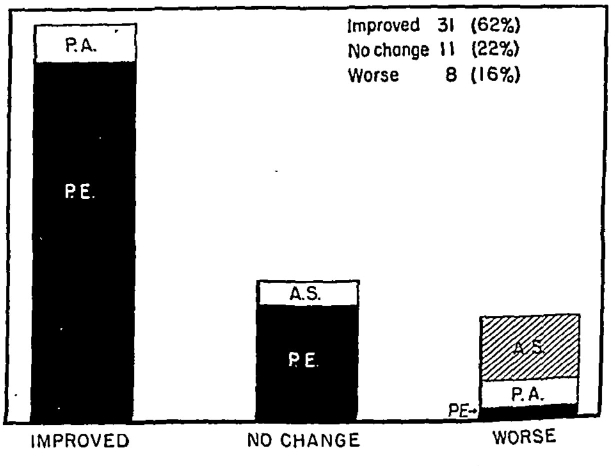


Fig. 5.—Results of treatment with parpanit® in 50 cases.

As previously stated, we were anxious to obtain objective evidence of failure or success in using this drug, and in the list of criteria a number of objective tests were mentioned. It was disappointing to us that there were not striking differences in all of these when the patients were improved. For example, the handwriting on superficial inspection in half the patients was unaffected. In over half of the patients the electromyogram showed only slight evidences of improvement after the patients were well adjusted with respect to the medication. The posture, even when measured as mentioned previously, changed in only one tenth of the patients, an amount that could be measured quantitatively. The gait, even though measured repeatedly, and in spite of a subjective report of improvement in walking, was not a striking quantitative proof of improvement. The finger-thumb rate in patients who responded favorably usually followed the clinical improvement and was a valuable guide in the assessment of success or failure. For example, a patient receiving scopolamine when first seen by us had a finger-thumb rate of 2 in each hand, this gradually increased in frequency as adjustment with parpanit® took place, and when she left this area at the end of a month her finger-thumb rate was up to 5.4 per second on each side. We felt that the changes of one tenth or even three tenths were not significant, but changes of more than this represented an improvement in speed. It was almost impossible to demonstrate improvement in the amount of rigidity and cogwheeling that was observed by the investigators. The most reliable indicators of improvement were from reports of relatives and patients on an increased ability to do the usual chores of life. These might not fit into the category of objective measurements as they were not done in the laboratory, but they are certainly not subjective. We did measure with a stop watch the time that the patient would take to get out of a chair. In some cases this gave us evidence of improvement. For example, 1 patient took 8 seconds before he was given parpanit® and was able to do it in 1½ seconds after treatment. We have kept all of this objective data in our files and expect in a later report to be able to make full correlations and statistical tables involving them. At the moment the most striking factors of success in these patients are their subjective report of well-being, the accounts from patients and relatives of a number of improved performances in leading their normal lives, which are very difficult, of course, to quantitate, and results in approximately half of the objective tests which we used. Since each patient had at least five objective measurements at each examination, we felt that we had evidence obtained in the laboratory of improvement that went along with the reported changes that were already mentioned.

## REPORT OF CASES

Case 1. *Favorable Response to Parpanit.®*—Mr. J. R., aged 29, noted the onset of tremor of the right hand, associated with stiffness and clumsiness, in 1941 (age 22). Symptoms progressed slowly and included stiffness of both legs, which was somewhat more pronounced in the right leg. There was no history of encephalitis, but the patient had had a severe attack of pneumonia at the age of 3. On examination, the patient presented the signs of a severe parkinsonian syndrome, with shuffling gait, immobile facies, decided cogwheeling and rigidity of both upper limbs, somewhat more pronounced on the right, and rigidity of both lower limbs. He had been treated with stramonium (six months), a preparation containing belladonna alkaloids (three years) and neostigmine. He found that life was very unpleasant while he was taking the belladonna preparation, owing to excessive dryness of the mouth and nose, blurring of vision and dilatation of the pupils.

On April 28, 1948, treatment with parpanit® was begun, a stabilizing dose of 300 mg. per day being reached (one 50 mg. tablet six times a day). He was still receiving this amount at the time of writing. The patient and his relatives reported that he is 25 per cent better than when he was receiving the belladonna preparation. He now shaves and dresses himself, moving more quickly and with greater ease. Neurologic examination showed little change, but there had been a steady increase in the finger-thumb rate (from 1.7 to 4.7 on the left and from 1.9 to 3.3 on the right) and in his rate over the 10 meter course. The electromyogram, however, showed little change.

Case 2. *Unfavorable Response to Parpanit®.*—Mrs. E. DeP., aged 41, a housewife who had suffered from influenza in 1918, noticed in 1943 the onset of stiffness and clumsiness of the left arm, followed by tremor. In 1945 stiffness of the left leg developed and in 1947 stiffness of the right arm. The condition had been diagnosed in 1943 as postencephalitic parkinsonism and had been treated with stramonium, scopolamine and Bulgarian belladonna. Dizziness, palpitation and weakness were noted with all these drugs. She was, therefore, referred to us for treatment. On examination she showed the classic signs of parkinsonism of severe degree, being barely able to walk unaided. Treatment with parpanit® was begun, but in spite of careful and repeated attempts to stabilize her, she was unable to tolerate the drug, complaining of dizziness, tachycardia and faintness with amounts as low as 75 mg. daily. Treatment with the drug was therefore discontinued.

## COMMENT

During the period of this investigation we had informal reports from other investigators, some of whom had had discouraging results with parpanit.® In communicating with them we found in general that the drug was being administered only two to three times a day and in rather large amounts, treatment being started with doses as high as 25 to 50 mg. Furthermore, in some instances the old medication was abruptly discontinued and parpanit® substituted. We have found that except in patients with mild disease who do not object or regress far when their previous drug is omitted, it is best to overlap the administration of the old medicine with parpanit.® There are several advantages to be gained by this maneuver. The first is that the patient is not suddenly deprived of his supporting drug and the abrupt change is avoided. After the parpanit® is administered in very small amounts, sudden removal of the previous medication may result in a period of several days in which the patient is severely incapacitated and miserable before the parpanit,® by adequate dosage, is effective. This is avoided by the overlapping method. The other advantage is that there are a number of patients who ultimately fare best on a combination of parpanit® and belladonna compounds, amphetamine or diphenhydramine hydrochloride (benadryl hydrochloride®), along with parpanit.® By using the overlap method we can gain an immediate notion as to the efficiency of the combined drugs in a particular patient.

The method that we have been using is to start the treatment with as little as 12.5 mg. of parpanit® five times a day in addition to the previous medication. The previous medication then is reduced slowly in quantity and strength and the parpanit® is slowly increased. We prefer to increase the parpanit® dosage in alternate steps so that on the second day after the initial 12.5 mg. five times a day the patient would take 12.5 mg. and 25 mg. alternately throughout the day. On the third day 25 mg. could be taken five times a day, and so on. The increments are 12.5 mg. (or ¼ of a tablet). After four to five days with this method the old medication is completely removed and the patient is then receiving parpanit® alone. The dose is then increased slowly until the mildest form of toxicity is experienced. Then the dose is reduced to a level where side effects are absent or minimal. From then on this medication is continued for a reasonable time, several weeks or months, and the patient's status reassessed and, if there is evidence that combining the parpanit® with other drugs increases the well-being of the patient, this is then done.

This report deals with the use of parpanit® alone; the combination of parpanit® with other drugs and the comparative effect of parpanit® and some of the other new drugs, namely, artane,® and diparcol® (proprietary antispasmodics), myanesin® (3-orthodoxy-1,2-propanediol) and various antihistaminic drugs, such as diphenhydramine hydrochloride, will form the basis for a second communication, which is now in preparation.

We have also noted in a number of patients that mild symptoms of overdosage with parpanit® will sometimes disappear after a week or so if this same schedule is maintained. Whether the patients learn to disregard the slight side effects or whether the side effects disappear by a mild degree of tolerance is not clear at the present time. It is well to remember that this may occur in any patient, and, therefore, if the beneficial effects of the drug outweigh the side effects in a given person, it might be well to postpone reduction of the drug for a week or so.

As stated before, we have not seen any evidence of the development of a tolerance for or addiction to this drug in any patient. We would again like to stress that the main effect of parpanit® is the reduction of rigidity and that its effect on the tremor is only mild and partial and is a secondary effect of rigidity reduction. The belladonna compounds seem to have a far more specific effect on the reduction of tremor, and it is for this reason that the ultimate regulation in the usual case of parkinsonian disease will be best achieved with combinations of drugs each of which takes care of a specific symptom.

### CONCLUSIONS

Parpanit® (diethylaminoethyl-1-phenylcyclopentane-1-carboxylate hydrochloride) has been used in 50 patients with Parkinson's disease during the past year. The effect of the drug has been measured quantitatively, subjectively and in control with placebo medication and the substances that the patients had received previously. Treatment with the drug was observed to be superior to the previous medication in 65 per cent of this group of patients. The degree of improvement was usually around 25 per cent. It is essential that one administer the drug cautiously in divided doses five times a day and watch carefully for side effects from overdosage. If this regimen is followed, very satisfactory results with this new compound will follow.

### ADDENDUM

Since this work was completed, we have tried parpanit® in 4 bedridden patients, who were not helped significantly in any way. We again emphasize that such success as we have had has depended on detailed individual regulation and supervision in each case in a manner that is similar to the individual dietary and insulin regulation for diabetes.

# STREPTOMYCIN IN THE TREATMENT OF TUBERCULOSIS

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Within a year after the discovery of streptomycin was announced,[1] Hinshaw and Feldman had proved, both experimentally and clinically, that this antibiotic has a unique suppressive effect on tuberculous infections.[2] During the last three years, the results of early investigations at the Mayo Clinic and at Mineral Springs Sanatorium have been confirmed by many other investigators.[3] Thousands of persons with tuberculosis have been treated with streptomycin at many different institutions, much of the work being carried on by the American Trudeau Society, the United States Public Health Service and the Veterans Administration. As a result of this concerted attack, many of the problems connected with streptomycin therapy should be solved in the near future.

So many types of tuberculous infection have responded in some degree to treatment with streptomycin that use of the drug almost could be said to have diagnostic significance. In practice, however, it is important to limit the use of streptomycin to conditions in which, to the best of present knowledge, it is clearly indicated.

### EXTRAPULMONARY TUBERCULOSIS

Treatment with streptomycin certainly is indicated in every case of disseminated tuberculosis and should be instituted as early in the course of the disease as possible. In tuberculous meningitis, the ultimate mortality rate may not be decreased by more than a small percentage, but the remission effected by chemotherapy is often dramatic and may persist for many months. In a number of the cases in which the termination was fatal, death has been attributed to internal hydrocephalus caused by blocking of the median and lateral foramens by fibrinous exudate. Madigan and his colleagues [4] suggested that this disaster possibly can be avoided by the daily intrathecal injection of heparin.

In generalized miliary tuberculosis without meningeal involvement, remission has occurred with considerable consistency, and in a sizable proportion of cases the process remains arrested for as long as two years after

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Read in the Session on Diseases of the Chest before the Section on Miscellaneous Topics at the Ninety-Seventh Annual Session of the American Medical Association, Chicago, June 24, 1948.

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the termination of treatment. In disseminated tuberculosis, as in malignant lesions, the success of treatment probably will be gaged by the percentage of two, three and five year survivals.

Cutaneous sinuses of tuberculous origin have healed with truly remarkable consistency during treatment with streptomycin, and recurrences are infrequent. Associated lymphadenitis tends to become quiescent. When bones or joints are the foci of infection, orthopedic surgery may be performed successfully after healing of the sinuses. Treatment with streptomycin is not so uniformly effective in tuberculous pleural fistulas, although it has brought about healing in more than half of such lesions. Anal fistulas may heal during treatment with streptomycin, but fistulas of long duration are likely to be refractory to chemotherapy.

Streptomycin therapy already is accepted as the most effective treatment known for ulcerative and granulomatous lesions of the oropharynx, larynx and tracheobronchial tree. When pain and dysphagia are present, the patient usually is relieved of the symptoms within a week after chemotherapy has been started, and healing of the lesions as a rule is complete after a few weeks of treatment. The percentage of recurrences is small.

In tuberculous enteritis and peritonitis the results of streptomycin therapy have been consistently favorable. In enteritis, symptomatic improvement usually occurs within a week or two after treatment was begun, and eventually there may be roentgenographic evidence of healing.

Treatment with streptomycin has brought considerable relief to many persons suffering from genitourinary tuberculosis. Alleviation of symptoms occurs in nearly all cases and often is prolonged. Associated sinuses generally heal, and often there is healing or decided regression of lesions of the bladder. Although there is seldom any change in renal damage as demonstrated by pyelography, the urine becomes free of tubercle bacilli in a high percentage of cases.

In early investigations it seemed that the bacteriologic conversion usually was temporary. However, as the number of patients treated has been increased, the percentage of persistent conversions has proved to be greater than had been expected. Units of the Veterans Administration for the study of streptomycin[5] report that, in a total of 54 cases in which the urine became free of tubercle bacilli, the organisms could not be recovered by culture or inoculation of guinea pigs in 46 cases since termination of the treatment; in 39 of these cases, the period elapsing since cessation of chemotherapy ranged from twelve to fifty-two weeks.

In a few of our patients who had renal tuberculosis, the disease has remained arrested as long as two years after the termination of treatment. However, since there is no certainty of permanent arrest, treatment with streptomycin must not be substituted for surgical procedures which may result in a real cure, although chemotherapy may be of value as preoperative and postoperative treatment.

Streptomycin appears to have a limited but definite place in the treatment of tuberculosis of bones and joints, employed either alone or in conjunction with surgical treatment.[6] Subsidence of local signs and symptoms may be complete in early stages of the disease; but only occasionally is improvement evident in the roentgenographic appearance of lesions.

Streptomycin is proving to be a great boon in the treatment of tuberculous otitis media. Occasionally, the drug has been used successfully in tuberculous pericarditis. In ocular tuberculosis the value of chemotherapy is suggested but not established. In cutaneous tuberculosis, the benefits of treatment with streptomycin may be striking, but are more likely to be variable or temporary. Streptomycin has not altered the prognosis of lesions located in the brain. The substance of the brain is impermeable to streptomycin, possibly because the drug is water soluble, whereas brain tissue contains a high percentage of lipids.

Despite the tendency of tuberculous pleurisy with effusion to regress spontaneously, we believe that a brief period of chemotherapy often is indicated in this condition. When streptomycin is administered, evidence of toxemia tends to disappear within a few days, and it seems reasonable to anticipate a lower incidence of complications and recurrences. We make the reservation, however, that in this condition the period of chemotherapy can and should be brief, usually not longer than two or three weeks.

In contrast, treatment with streptomycin has been found to be relatively ineffective in tuberculous empyema, except in an occasional case. Pleural fluid has been found to contain an adequate concentration of streptomycin when the drug is injected intramuscularly, but in empyema the fluid generally is highly acid, whereas streptomycin is most effective in a medium which is neutral or slightly alkaline in reaction.

### PULMONARY TUBERCULOSIS

In the treatment of pulmonary tuberculosis with streptomycin, the necessity for careful selection of patients must be emphasized. In this large category of tuberculosis in human beings, the pathologic changes are so diverse and the host-parasite relationships are so variable that the same antibacterial agent may produce a therapeutic effect in one situation and not in another. In theory, chemotherapy can be expected to be most effective in those pulmonary lesions which are accessible to the blood stream and which are not characterized by irreversible anatomic changes. In practice, streptomycin has proved to be most useful in the treatment of such lesions. They are usually recent lesions, predominantly exudative in character, and often are due to hematogenic or bronchiogenic dissemination.

Chiefly for the very reason that streptomycin has proved to be so valuable in certain tuberculous conditions, we believe that it should not be used in cases in which the prognosis without chemotherapy would be favorable. Because of the phenomenon of bacterial resistance, there is no certainty that streptomycin will exert its suppressive effect for more than one period of treatment. No one needs to be reminded that tuberculosis tends to be a chronic and recurrent disease. To use streptomycin unnecessarily may be tantamount to wasting therapy for which later there may be real need.

Hence, we believe that streptomycin should not be used in minimal pulmonary tuberculosis or in any other tuberculous condition for which other satisfactory treatment is available. Moreover, we doubt the wisdom of the use of streptomycin indiscriminately for prophylactic purposes. For instance, after pulmonary hemorrhage we believe it is preferable to administer streptomycin if and when there is evidence of bronchiogenic dissemination rather than to prescribe the drug routinely, solely as prophylaxis.

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[5] Barnwell, J. B.: Personal communication to the authors.

[6] Bickel, W. H.; Young, H. H.; Pfuetze, K. H., and Norley, T.: Streptomycin in Tuberculosis of Bone and Joint, J. A. M. A. 137: 683-687 (June 19) 1948.

Accurate appraisal of the condition of each patient is always necessary in the treatment of pulmonary tuberculosis. Streptomycin should be prescribed only as part of a far reaching plan to bring the patient's disease under lasting control. It is most important that chemotherapy be correctly timed in respect to other therapeutic procedures which may be planned. When collapse therapy or pulmonary resection is indicated, it is advisable to institute the procedure at a time when the patient has received sufficient benefit from chemotherapy but, if possible, before the occurrence of bacterial resistance.

As yet there is no proof that drug-resistant tubercle bacilli are either more or less virulent than drug-sensitive organisms. The significant fact is that, after bacterial resistance has appeared, the suppressive effect of streptomycin is lost, and the patient again is dependent on his own forces of defense. If these are inadequate, there is danger of relapse or extension of disease. Therefore, by the use of any other therapeutic resource which may be indicated, the opportunity must not be lost to fortify a drug-induced remission.

Unquestionably, chemotherapy has increased possibilities for the surgical treatment of pulmonary tuberculosis. By causing resolution of exudative lesions, especially in the contralateral lung, and by improving the patient's condition by reducing toxemia, treatment with streptomycin may make thoracoplasty or pulmonary resection[7] possible. The chief and possibly the only valid indication for the use of streptomycin in fibrocaseous and fibrocavernous disease is as an adjunct to surgical treatment. In acute pneumonic processes, pneumothorax probably can be established more promptly and more safely after a course of streptomycin than would otherwise be possible.

### ADMINISTRATION AND DOSAGE

Streptomycin is administered parenterally, by intramuscular or deep subcutaneous injection. In patients having tuberculous meningitis treated at the Mayo Clinic, remission has been sustained only when the drug was administered intrathecally as well as intramuscularly. Most investigators have agreed that intrathecal administration is necessary, but uniform opinion as to the amount and duration of such treatment has not been recorded.

The evidence indicates that intramuscular administration alone gives satisfactory results in all other types of tuberculosis amenable to chemotherapy, and, in fact, this may prove to be the only practical method of administration. Even when lesions are accessible to local treatment with streptomycin, topical application by itself seems to be relatively ineffective.

The optimal dose and the optimal duration of treatment cannot be stated positively at present. In early investigations doses of from 1 to 3 Gm. a day were given for two to six months. It now appears that in most cases the therapeutic effect can be produced and untoward results are less likely to occur when the dose of streptomycin is relatively small and the period of treatment is relatively brief. A dose of 0.5 Gm. a day often produces a therapeutic result in more responsive types of tuberculosis.

It has been found that the frequency of administration can vary greatly. When the total daily dose is at least 1 Gm., results apparently are comparable, whether the drug is administered at four, six, eight, twelve or twenty-four hour intervals. Studies now in progress indicate that the entire daily dose of streptomycin can be given in one injection without sacrifice of therapeutic effect.

The latitude apparently permissible in frequency of administration is unexplained. Streptomycin is excreted rapidly, and, to maintain a bacteriostatic concentration in the blood, administration as often as every six hours probably is necessary. It has been suggested that in relatively large doses streptomycin actually is bactericidal[8] and that infrequent administration is effective because with each dose a proportion of the bacterial population is destroyed.

### BACTERIAL RESISTANCE

It is not yet known whether dosage in streptomycin therapy has any relation to the rate of occurrence of bacterial resistance. Duration of treatment, however, probably is a major factor. Serial cultures of patients' sputum have shown that a few tubercle bacilli relatively resistant to streptomycin are present before exposure to the drug and that, during treatment, the resistant organisms increase in number and in the degree of their resistance.[9] In approximately three fourths of all cases, the bacterial population has been predominantly resistant after six to sixteen weeks of treatment; occasionally, resistance has been noted as early as the thirtieth day of treatment.

It is impossible, in any given case, to predict how soon resistance will appear or how long it will persist after it has appeared. In 1 case in our series, bacilli resistant to 3,000 micrograms of streptomycin per cubic centimeter of medium could be recovered from the patient more than three years after cessation of treatment. In a very few patients under our observation, strains predominantly resistant have been replaced by sensitive strains when medication was discontinued.

Since the probability of occurrence of resistance increases as treatment is prolonged beyond six weeks, the consensus is that, in most cases, the duration of chemotherapy should be limited to five or six weeks and, occasionally, to even briefer periods. Suppression of an infection for a few weeks often is sufficient to enable the patient's natural powers of defense to become ascendant. If relapse occurs, treatment can be resumed if the infecting organisms are still sensitive to streptomycin in vitro. If the bacterial strain has become drug resistant, prolongation of the original period of treatment would be useless anyway. When it is possible to carry out laboratory tests for the rapid and frequent determination of resistance in vitro, it should be possible to gage duration of treatment on this basis.

Little is known of the factors concerned in the production of bacterial resistance. Variation in the concentration of streptomycin to which foci of tubercle bacilli are exposed may be a factor. In a case at the clinic, bacilli extremely resistant to streptomycin were recovered from the patient's sputum after chemo-

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therapy, but when this patient came to necropsy, a perivesical abscess was found to contain bacilli which were as sensitive to streptomycin as the original strain had been. McDermott and his associates[10] mentioned two instances in which streptomycin-sensitive bacilli were isolated from the cerebrospinal fluid of persons who were discharging drug-resistant organisms from other lesions.

One of the patients in our early investigation was treated with streptomycin in preparation for pneumonectomy. After six weeks of treatment, bacilli resistant to 3,000 micrograms per cubic centimeter of medium were recovered from the patient's sputum. After pneumonectomy, the patient continued to discharge tubercle bacilli. However, these organisms were much less resistant, cultures being inhibited by from 25 to 100 micrograms of streptomycin per cubic centimeter of medium. Evidently the resected lung, which contained a huge cavity, had offered optimal conditions for the production of resistance.

Methods are being sought for the prevention or delay of the occurrence of bacterial resistance. Recently, investigators at Fitzsimons General Hospital[11] reported a study in which 16 patients received intermittent treatment, 2 Gm. of streptomycin being given in one day at intervals of two, three, four or five days, for a total elapsed time of one hundred and twenty days. With these schedules, only 1 of the 8 patients whose sputum continued to contain Mycobacterium tuberculosis discharged bacilli which were streptomycin resistant; of 8 patients who received the drug at three day intervals, there were 5 whose sputum continued to contain M. tuberculosis, but none of these 5 discharged resistant organisms.

Although this series of cases is small, the low incidence of bacterial resistance is distinctly unusual. Moreover, despite these schedules of discontinuous treatment, a definite therapeutic effect was produced and in no case was there subjective evidence of toxicity. Work by Youmans[12] has indicated that in vitro the tubercle bacillus divides at intervals of from thirty-six to eighty-four hours. The rate of multiplication in the human body must be very variable, but if streptomycin is effective when it is given at intervals of two or more days, it would seem that the drug acts by inhibiting and possibly by destroying those bacilli which are in a susceptible stage of reproduction.

Another method of attack against the problem of bacterial resistance consists of the simultaneous administration of two or more agents which are antibacterial so far as M. tuberculosis is concerned, on the assumption that organisms naturally resistant to more than one compound should occur with extreme rarity. In a series of 70 cases of tuberculous meningitis, Cocchi and Pasquinucci,[13] of the University of Florence, used streptomycin and "promin" (sodium p,p′-diaminodiphenylsulfone-N,N′didextrose sulfonate) in combination; they stated that when this regimen was employed, bacterial resistance to streptomycin did not occur. In studies in progress at our own institution and at other institutions, streptomycin is being administered together with "promin" and para-aminosalicylic acid.

If use of a combination of antibacterial agents prolongs the suppressive effect of these agents by preventing or postponing the occurrence of bacterial resistance, the patient should have commensurate opportunity to overcome his disease. Furthermore, it has been suggested that, used in combination, antibacterial compounds may have an additive therapeutic effect. In experimental tuberculosis, Smith and McClosky[14] reported better results from the use of streptomycin and "promin" together than from the use of either drug alone. Recently, Lincoln and her associates[15] reported on the use of "promizole" (4,2′-diaminodiphenyl-5′-thiazolesulfone) together with streptomycin in the treatment of tuberculous meningitis. As yet, insufficient time has elapsed for it to be possible to determine whether results are better with this combination of agents than could have been expected with the use of streptomycin alone.

## TOXICITY

The potential toxicity of streptomycin no longer is of great moment, since it has been learned that in most cases the therapeutic dose of the drug is appreciably less than the toxic dose. When the dose is relatively small and when the patient's renal function is adequate to preclude the occurrence of high concentrations of streptomycin in the blood, evidence of toxicity is minimal. Only a small proportion of patients receiving a total daily dose of 1 Gm. or less have shown the vestibular dysfunction which is a common occurrence when larger doses are used.

With regimens in use at present, the potential toxicity of streptomycin is chiefly a matter of a patient's idiosyncrasy or acquired sensitization to the drug. Reactions of sensitization usually appear after treatment for one week to three weeks, with manifestations of fever, nausea, cutaneous eruptions, pruritus and eosinophilia. Temporary withdrawal of streptomycin is necessary for the abatement of reactions of any severity, but most patients will tolerate the drug after a rest period, particularly if desensitization is carried out.

Among nearly 1,000 patients treated by the medical services of the Army, Navy and Veterans Administration,[16] isolated instances of serious toxic effects have occurred. Three cases of exfoliative dermatitis have been reported, 1 case of granulocytopenia and 2 cases of aplastic anemia[17] in which streptomycin was suspected of being a precipitating factor.

It appears that streptomycin can be used with comparative safety in pregnancy. In a small series of cases we have administered a dose of 0.5 Gm. daily for three to five weeks during the third trimester of pregnancy. In all cases the mother has received appreciable benefit from chemotherapy, and the infants have appeared normal at birth; their labyrinthine function will be ascertained when caloric tests can be performed.

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[12] Youmans, G. P.: A Method for the Determination of the Culture Cycle and the Growth Rate of Virulent Human Type Tubercle Bacilli, J. Bact. **51**: 703-710 (June) 1946.

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[14] Smith, M. I., and McClosky, W. T.: The Chemotherapeutic Action of Streptomycin and Promin in Experimental Tuberculosis, Pub. Health Rep. **60**: 1129-1138 (Sept. 28) 1945.

[15] Lincoln, E. M.; Kirmse, T. W., and De Vito, E.: Tuberculous Meningitis in Children: A Preliminary Report of Its Treatment with Streptomycin and "Promizole," J. A. M. A. **136**: 593-597 (Feb. 28) 1948.

[16] Streptomycin in the Treatment of Tuberculosis: Current Status, Veterans Administration, Streptomycin Committee, report of the Council on Pharmacy and Chemistry, J. A. M. A., to be published.

[17] Deyke, V. F., and Wallace, J. B.: Development of Aplastic Anemia During the Use of Streptomycin: Report of Two Cases, J. A. M. A. **136**: 1098 (April 24) 1948.

It is obvious that special care must be used in the selection of pregnant patients for streptomycin therapy. The effect of the drug on fetal development early in gestation is not known. The mother's need of chemotherapy, the potential toxicity of the drug for the infant, the risk of terminating pregnancy and the availability of other therapeutic measures are all factors which must be considered in the management of any patient.

### SUMMARY AND CONCLUSIONS

In the last four years streptomycin has become an important therapeutic resource in tuberculosis. In some tuberculous conditions streptomycin is effective when it is used alone. In other conditions it is a valuable adjunct to other forms of treatment and especially to surgical procedures. It may be found that the value of streptomycin is enhanced by use of the antibiotic in combination with other agents which also are antibacterial in respect to tuberculosis. Since it has been observed that relatively small doses of streptomycin are therapeutically effective, the potential toxicity of the drug has become a minimal consideration.

The phenomenon of bacterial resistance remains the chief limitation to the treatment of tuberculosis with streptomycin. In the selection of patients for treatment, the disadvantage of the production of strains of drug-resistant tubercle bacilli must be weighed against the patient's immediate need of chemotherapy and against the probability of a therapeutic result in a given case.

Other problems, in addition to that of bacterial resistance, pend further investigation. However, the efficacy of streptomycin against tuberculous infections has proved that tuberculosis is yet another disease vulnerable to chemotherapeutic attack. Without undue optimism, greater triumphs may be anticipated.

## ABSTRACT OF DISCUSSION

Dr. George Ornstein, New York: Streptomycin has produced more results than any previously used drug in tuberculosis. Its greatest value is in acute exudative tuberculosis of the lung, in which form of tuberculosis there is frequently an underlying cavity masked by the exudative infiltration. The cavity may be overlooked when conventional roentgenograms are used. Tomograms reveal the hidden cavity in the lung. In my group such roentgen studies are made before streptomycin is given. If in three or four weeks of therapy the cavities do not close, the lung is collapsed by pneumothorax or by other surgical methods should the pneumothorax therapy fail. The streptomycin then is discontinued. There has been a change in the spontaneous closure of cavities in my series of cases. With routine rest therapy there has been spontaneous closure of 15 per cent of cavities. Since the use of streptomycin the percentage has risen to over 40 per cent. Streptomycin has an excellent effect on endobronchial tuberculosis, and, inasmuch as each cavity has endobronchial tuberculosis, the ball valve mechanism in each patent cavity produced by the endobronchial tuberculosis may be made ineffective by the use of streptomycin. After a few weeks of such treatment, pneumothorax produces more rapid collapse than would have been the case without streptomycin therapy. There were also deaths among the far advanced cases of pulmonary tuberculosis. Tomographic studies were always made in these cases, and if the cavities did not respond rapidly my co-workers and I used our previous methods of collapse therapy, which cut down the death rate considerably. We rarely continued to use streptomycin more than three to four weeks when cavitary formation was present, unless there was evidence of healing of the cavities. We have had cases in which far advanced disease was arrested with streptomycin therapy. I hope that physicians will not regard streptomycin therapy as they did pneumothorax therapy when it was comparatively new. A pneumothorax was done only in a patient who was very ill, and for two decades pneumothorax was not induced early in the disease. It appears that many clinicians have the same attitude toward streptomycin. Too much thought is given to whether the tubercle bacillus will become resistant to the drug and whether in the future an activation of the disease will occur. It may occur, but clinically it has occurred infrequently. If the disease is rapidly arrested, patients have a much better chance than if one treats them when their disease has progressed.

Dr. Donato G. Alarcón, México, D. F., Mexico: The series presented by Dr. Pfuetze to show the results of streptomycin in the treatment of tuberculosis are in accord with the results obtained in other places in the United States and in other countries. In Mexico we obtain similar results. I find the paper commendable because it presents the successful as well as the unsuccessful results with scientific honesty. I agree with the statements made by Dr. Ornstein regarding the necessity of accurate control of the presence of cavities as far as it is possible by the laminagram. Finally, I would like to know the results obtained by Dr. Pfuetze in the treatment of primary pulmonary tuberculosis in children and in adults. Results in this particular group have been very encouraging in our country.

Dr. Benjamin Potter, Jersey City, N. J.: Streptomycin offers an unquestionable favorable effect in an appreciable number of cases of certain types of tuberculosis. The drug is not a substitute for accepted measures of therapy, yet it can initiate improvement in patients who previously would not respond to any known therapeutic approach. My second point concerns the part which "tissue resistance" plays in continuing the initial favorable changes after streptomycin therapy is discontinued or when resistance to the drug develops. As Dr. Pfuetze and Dr. Pyle have shown, rapid absorption of infiltrations and remarkable clinical improvement follow in susceptible cases, and it is these alterations which apparently bring about a state of general well-being and local tissue resistance, which serve to carry on where the drug's action ceases. Finally, I am inclined to agree with Dr. Hinshaw that the dose should be individualized and that the optimum dosage will be more closely approximated if determinations are made according to the patient's weight. I think that it is too early to generalize on any one particular dosage, although studies such as Dr. Bogan's should be encouraged.

Dr. H. G. Trimble, Oakland, Calif.: In the West, we heartily agree that one should not make indiscriminate use of streptomycin. We feel that it is a potent weapon that has excellent use and should be kept for the most useful work. Streptomycin therapy does not cure tuberculosis, but it does give temporary control of the disease many times and helps the patient with acute exudative lesions who could not get well without it. Dr. Pfuetze used collapse therapy in patients who improved with streptomycin therapy, but still the sputum was culture positive. Tuberculosis cannot be well controlled in the course of six weeks or three months even when prolonged sanatorium care alone is added. My colleagues and I also are in favor of combining some form of relatively simple collapse therapy. We think that collapse is of decided benefit after streptomycin has given temporary control in those cases in which streptomycin is needed. I think that surgeons particularly will subscribe to this. One cannot always predict the course of the tuberculosis, and when one sends the patients to the surgeon for excision therapy when the patient has already had streptomycin the prognosis is much more serious.

Dr. Abel Froman, Chicago: I would like to ask Dr. Pfuetze whether he uses streptomycin in minimal lesions.

Dr. Morris Braverman, Detroit: Tuberculosis in pregnancy and the simultaneous use of streptomycin bring questions to my mind: (1) What happens to the mother, (2) what happens to the fetus, and (3) what happens to the child later? Is it born deaf?

Dr. Karl Pfuetze, Cannon Falls, Minn.: Dr. Ornstein has emphasized the necessity of treating patients with old chronic lesions. It is certainly permissible to use streptomycin for the relief of symptoms. We do not use it routinely in cases of chronic disease at present, for we cannot honestly anticipate a satisfactory result and after a few months the patient's tubercle bacilli are usually streptomycin resistant. Such patients may leave the sanatorium against medical advice and spread their tuberculosis to others. I agree with Dr. Ornstein that many patients with fresh exudative lesions should receive streptomycin soon after their admission. Occasionally we start treatment with the drug before the bed is warm. However, we are still willing to wait a few weeks or more in many cases before deciding to use streptomycin. Dr. Alarcón has asked about the use of streptomycin in primary infections. I have not used streptomycin in primary infections. In our part of Minnesota, a prosperous farming area, one rarely sees malignant primary tuberculosis in children. I would not hesitate to use it in such cases if the patient were not doing well with routine care. I do not believe that streptomycin should be used routinely for all fresh primary lesions, but I am willing to have the physicians who see many such cases give us the answer to this question. Combining collapse therapy with streptomycin is important. We have continually stressed this point, and many of our most dramatic results have occurred in cases in which streptomycin therapy was combined with necessary collapse procedures. We do not use streptomycin routinely in cases of minimal disease. Our present attitude is to decide each such case on its own merits. Later, perhaps, our opinion in this respect will be reversed. It seems to me that we must all remain open minded in our attempts to solve these problems. The use of streptomycin for tuberculosis in pregnant patients presents another problem. We do not know as yet what effect streptomycin may have on the fetus. Thus far, we have used it very cautiously for several weeks in 3 pregnant patients in doses of 0.5 Gm. daily. In each case, an apparently normal baby was born. We must wait to see what may occur in these children two or three years hence.

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**Contraindications to Splenectomy.**—It is essential that the spleen not be removed in cases of agnogenic myeloid metaplasia because in this condition much of the bone marrow function of forming blood cells has been transferred from the bone marrow to the spleen and removal of this organ may be rapidly fatal. Competent hematologic study and bone marrow observation will quickly establish this diagnosis and any thought of splenectomy must be dismissed. With rare exceptions, splenectomy in cases of leukemia and lymphoblastoma with splenomegaly should be avoided. The exceptions include rare panhematocytopenias or hemolytic anemias of severe degree caused by hypersplenism in some of these cases. They also include cases in which the disease may still be limited to the spleen but such cases are very rare. The spleen should not be removed in polycythemia vera although rarely a case is seen in which the influence of the enlarged spleen is such as to inhibit the output of a normal number of cellular elements. It is most unusual to find splenomegalies in infections in which splenectomy is justified, although rarely the hypersplenic effect is such as to demand careful consideration of this procedure. In general, patients with paroxysmal nocturnal hemoglobinuria do poorly after splenectomy and patients with Mediterranean and sickle cell anemias are also not helped by the procedure. The technical complications of splenectomy in patients with congestive splenomegaly in which marked perisplenitis exists are of such seriousness and the benefits so problematical as to contraindicate its employment when this state is found.—Frank H. Lahey, M.D., and John W. Norcross, M.D., Splenectomy: When Is It Indicated? *Annals of Surgery,* September 1948.

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## Special Article

# MEDICINE UNDER THE BRITISH NATIONAL HEALTH ACT

MORRIS FISHBEIN, M.D., Editor
The Journal of the American Medical Association

Long before Great Britain began to provide medical care for the people under the new British National Health Act other nations had experimented with state medicine and compulsory sickness insurance systems. A careful study of the British National Health Act indicates that it represents another attempt to make administration serve purposes in medical care which are foreign to the practice of medicine.

Under the British National Health Act which became effective July 5, 1948, Great Britain was divided into some fourteen or more areas, each of which was controlled by a regional board. These boards include representatives of all of the interests mainly concerned in the conduct of hospitals. The ultimate financial control rests with the Minister of Health. He delegates to the regional boards the responsibility of planning hospital services in their areas. They are charged not so much with the management of individual hospitals as with arranging the pattern of hospital service and determining whether or not services are adequate. The hospitals are managed by management committees in their own areas. Each hospital has, moreover, a local committee. The chain of control is from the Minister of Health to the national health boards to the management committees and from them to the house committees.

I have mentioned the control of hospitals first since modern medicine depends on the hospital as the center of medical care and since hospital costs nowadays represent the large bills which for the most part have caused the public to take a special interest in the provision of medical service. The facts that I shall present here regarding the British National Health Act are based on a trip to England early in August 1948, during which I had opportunity to view at first hand the methods of practice, to meet with representatives of the medical profession and of the Ministry of Health and to speak with patients from every class of society.

Under the new Act the Ministry of Health provides hospital and specialist services without cost, other than the tax paid by the people of England, to all who wish to enrol under the Act. The people are also provided with appliances, such as eye glasses, wigs, hot water bottles and similar materials that are not more expensive than the types prescribed by the Ministry. The hospitals may charge for part-paying patients in single rooms or wards.

The Minister of Health is advised by a central council which includes 41 persons, of whom 6 are officers of the Royal Colleges of Surgeons, Physicians and Obstetricians, the General Medical Council, the British Medical Association and the chairman of the public health office. The remaining 35 are appointed by the Minister of Health. Fifteen medical practitioners are included, 2 of whom are experts in mental disease; 5 in the field of hospital management; 5 in

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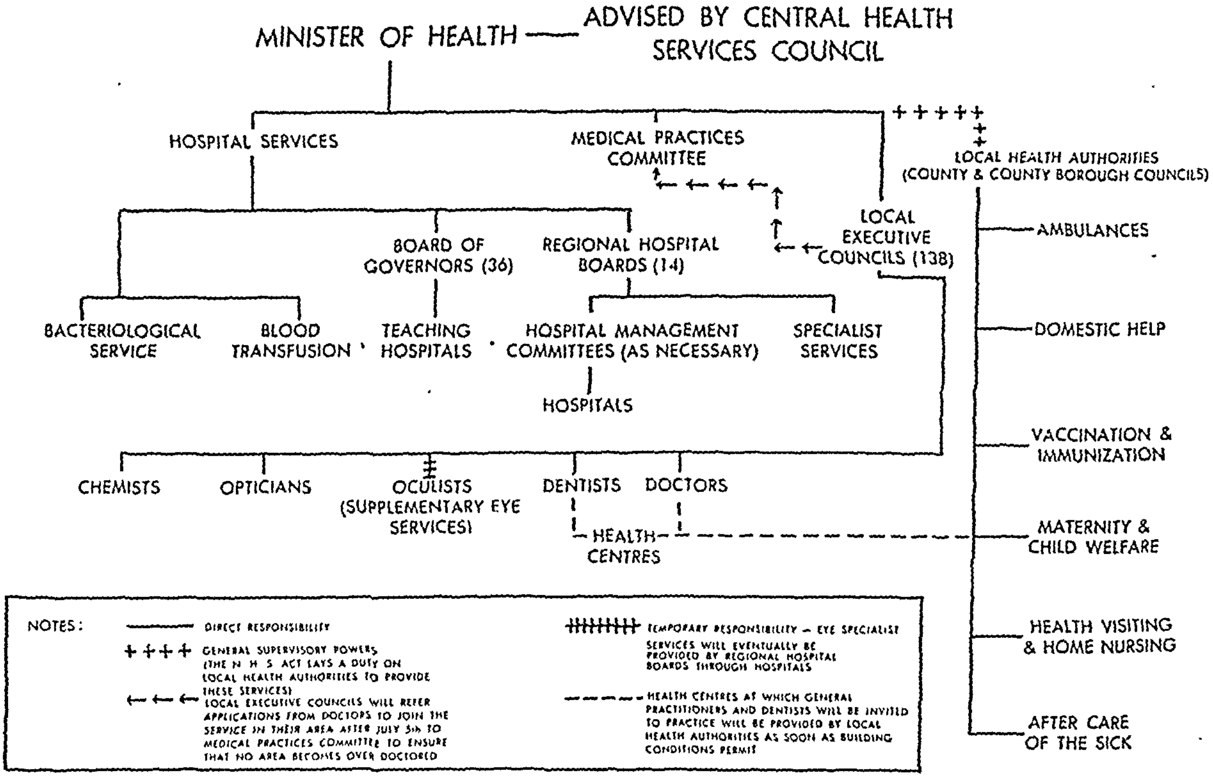
Read before the Annual Congress on Medical Education and Licensure, Chicago, Feb. 8, 1949.

local government; 3 dentists; 2 mental health experts; 2 nurses; 1 midwife, and 2 pharmacists. Thus the British have organized one of the most complicated machines for dealing with health that the world has ever known. From the data already available, the certainty exists that this monster bureaucracy removes from hospital care and medical care all of the personal spirit that has given to voluntary hospitals and individual physicians in the United States the leadership and the progress in medical science that are distinctive of our country. Moreover, the costs of the service have gone far beyond any of the governmental estimates in advance of its installation. Apparently the costs of drugs and appliances for the first three months were three times the amounts estimated by the Ministry of Health.


MINISTER OF HEALTH
ADVISED BY CENTRAL HEALTH SERVICES COUNCIL
HOSPITAL SERVICES
MEDICAL PRACTICES COMMITTEE
LOCAL HEALTH AUTHORITIES (COUNTY & COUNTY BOROUGH COUNCILS)
LOCAL EXECUTIVE COUNCILS (138)
BOARD OF GOVERNORS (36)
REGIONAL HOSPITAL BOARDS (14)
AMBULANCES
BACTERIOLOGICAL SERVICE
BLOOD TRANSFUSION
TEACHING HOSPITALS
HOSPITAL MANAGEMENT COMMITTEES (AS NECESSARY)
SPECIALIST SERVICES
DOMESTIC HELP
HOSPITALS
VACCINATION & IMMUNIZATION
CHEMISTS
OPTICIANS
OCULISTS (SUPPLEMENTARY EYE SERVICES)
DENTISTS
DOCTORS
HEALTH CENTRES
MATERNITY & CHILD WELFARE
HEALTH VISITING & HOME NURSING
AFTER CARE OF THE SICK
NOTES:
DIRECT RESPONSIBILITY
++++ GENERAL SUPERVISORY POWERS (THE N H S ACT LAYS A DUTY ON LOCAL HEALTH AUTHORITIES TO PROVIDE THESE SERVICES)
← ← ← LOCAL EXECUTIVE COUNCILS WILL REFER APPLICATIONS FROM DOCTORS TO JOIN THE SERVICE IN THEIR AREA AFTER JULY 5th TO MEDICAL PRACTICES COMMITTEE TO ENSURE THAT NO AREA BECOMES OVER DOCTORED
TEMPORARY RESPONSIBILITY – EYE SPECIALIST SERVICES WILL EVENTUALLY BE PROVIDED BY REGIONAL HOSPITAL BOARDS THROUGH HOSPITALS
HEALTH CENTRES AT WHICH GENERAL PRACTITIONERS AND DENTISTS WILL BE INVITED TO PRACTICE WILL BE PROVIDED BY LOCAL HEALTH AUTHORITIES AS SOON AS BUILDING CONDITIONS PERMIT

Plan for the provision of medical care under the British National Health Act.

## THE MEDICAL PROFESSION AND THE MINISTRY OF HEALTH

American physicians have been familiar with the steps in the development of the British National Health Act and with the attitude of the British Medical Association toward that Act. Today, about six months after the service became effective, the evidence is clear that the medical profession accepted promises from the Ministry which have never been fulfilled. They accepted guarantees of certain rights under the Act which have already been violated. Certainly we in the United States should be intelligent enough to learn from that record that such promises and guarantees are without any validity.

Dr. Guy Dain, who is chairman of the Council of the British Medical Association and who with the secretary of the British Medical Association conducted most of the negotiations with the government, told the medical profession in the process of these negotiations that certain freedoms would be guaranteed by the Ministry of Health. These included freedom of choice, freedom to do state and private practice, freedom of speech, clinical freedom, freedom to regulate the list of patients and freedom to practice where the physician wished to practice, provided that he did not *select an overdoctored* area.

In a communication to the *British Medical Journal,*[1] Dr. George Rossdale questions either the attainment or the retainment of these freedoms and asserts, "Dr. Dain speaks with two voices in the same speech." "His list of freedoms," says Dr. Rossdale, "is far less formidable than his list of servitudes." Dr. Dain himself talks of the lack of medical manpower and of the manner in which physicians are being overwhelmed with trivial complaints. Dr. Dain warns that the coming winter may cause a complete breakdown in medical services. He reminds the medical profession of the Special Inducement Fund. Of course, a physician can refuse to accept a patient who applies for a place on his panel; he can decide how much private practice he would like to do; but actually there are no private patients left for 93 per cent of the general practitioners in England, and most of the medical profession are convinced that private practice represents 1 per cent of all of the practice in England. Dr. Rossdale inquires, "What is an over-doctored area?" and points out that a doctor cannot go to any area when the Ministry of Health forbids. Indeed, he concludes, "The truth is that the very opposite of freedom has been attained in fact—a state of servitude and indignity never before thrust on any profession in this country."

While in England I spent an entire morning with Sir Wilson Jameson, chief medical officer for the

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[1] Rossdale, G.: Freedom of the Profession, Brit. M. J. (supp.) 1: 18 (Jan. 8) 1949.

Ministry of Health, and with Dr. Kennedy, his assistant. I have since had interviews with other representatives of the Ministry of Health both for England and for Scotland. When I left Sir Wilson Jameson, who is known and admired by many American friends and colleagues, he asked me whether there was any further information that he might give to me. I replied that I would be especially happy to receive a copy of each of the forms and each of the regulations used under the Act. Sir Wilson Jameson said—and he has a keen wit—"Doctor, have you chartered the Queen Elizabeth to take you home?" For some months I have been receiving each week additional forms and additional regulations. These form the basis of certain processes in the practice of medicine in Great Britain that I shall later describe in detail.

### THE MECHANISM OF THE HEALTH ACT

The administration of medical practice is, in general, central, regional and local. The Ministry of Health administers the Act. The Central Health Services Council already described provides the Minister with professional and technical guidance. The Minister has power to constitute standing advisory committees, and several of these, particularly related to the prescribing of drugs, have already been established. Regional boards act as agents of the Minister for organizing and developing hospital and specialist services within their areas, but ultimate control rests with the Minister. Detailed management of all hospitals except teaching hospitals is in the hands of hospital management committees which are appointed by the regional boards. The teaching hospitals, which are associated with universities, are managed by boards of governors who are appointed by the Minister from persons nominated by the university, the regional board of the area, the medical and dental teaching staff of the hospital, the local medical health authority and any other organization that the Minister considers to be concerned.

The local health authorities are responsible for local services, including the care of expectant and nursing mothers and young children, priority dental care for expectant and nursing mothers and young children, home midwife service, home nursing services, public health nursing in the home, domestic help where needed on grounds of health, after-care of sick persons in their homes, vaccination and immunization, and ambulance services.

A local executive council has been appointed for each local health authority area. The doctors, dentists and pharmacists who take part in the family practitioner arrangements under the Act have their contracts with the local executive council. Each local executive council includes a chairman and 24 members, 8 of whom are appointed by the local health authority, 4 by the Minister of Health, 7 by the local medical committee, 3 by the local dental committee and 2 by the local pharmaceutical committee.

The service began by asking every citizen to choose a doctor. Lists of doctors in each area participating in the scheme were posted in the local libraries and the post office. The doctor had the right to refuse to accept any patient. Patients may change doctors, and doctors may have patients' names removed from their lists. The doctor is paid according to the number of patients on his list.

When a patient joins a list, he receives a medical card. If he happens to be away from home when he becomes ill, he can go to any local doctor who participates in the scheme, present his medical card and receive treatment.

The Ministry in its propaganda stresses that this is not charity but that everyone pays for the service by taxation. Nevertheless, the word "free" is used constantly, such as in the statement that patients "receive free treatment" and ". . . medicines, drugs and appliances are to be had free from any pharmacist who takes part in the scheme." There are no hospital charges, but those who have money may pay for extra privacy in single rooms or small wards. Specialist ear clinics have been established, and the Medical Research Council invented a new hearing aid which is provided without extra cost (the propaganda bulletin says "free") to those for whom it is prescribed. Also spectacles are provided without extra cost, but fancy glasses and frames can be had on the payment of extra costs.

Since British physicians were accustomed to own their practices and to sell the good will, the Ministry of Health proposed to compensate those who lost their practices by setting aside a sum of $264,000,000 as compensation.

A physician may establish himself in any area that he chooses, provided that he does not set up a new practice in an area that has been called "overdoctored." A physician who was already in practice when the Act came into force could be paid entirely by capitation fees or by a basic salary of $1,200 a year and lower capitation fees. There are various ways in which a doctor may make a little extra money, and these will be discussed later.

In making their agreement with the Ministry to serve under the Act, the British medical profession demanded reassurance that a doctor would be free to publish his views on the organization and administration of the service. Much of the criticism that will be here cited is based on letters from physicians to the *British Medical Journal* and to the London *Lancet*, on papers already published by British physicians and on letters and documents received from agencies in England established to combat the tremendous powers that rest in the Ministry of Health.

### MEDICAL EDUCATION

At present doctors in Great Britain spend two years in a recognized medical school and then three years in a hospital or dispensary. Each student spends six months as a clinical clerk and another six months in surgical training as a dresser and in anesthetics, radiology and operative surgery. Practical instruction is also given in obstetrics, gynecology and infant hygiene, and each student must spend some time in a maternity hospital and attend under adequate supervision at least 20 cases of labor. A doctor may go immediately from this training into practice under the panel system, or he may take a residency in a hospital or act as assistant to an established physician. He may, if he wishes, spend two or more additional years qualifying for a higher degree in a specialty. Already proposals have been made to pay for students in medical schools, to make a hospital service corresponding to our internship compulsory and to demand that every specialist have at least six months' clinical experience followed by a course in a specialty lasting at least four years. The General Medical Council has also urged that more emphasis be placed on child health, psychiatry and social medicine and that instruction be added on rehabilitation.

The Ministry of Health has pointed out that every man, woman and child in the country, without any exception, is eligible for all the health services. There is no age bar, so that the service is open to old persons as well as younger ones. Five sixths of the total cost of the National Health Service comes from general taxation, and one sixth is taken from the National Insurance Fund, which is a tax on the payroll. A portion of the worker's tax covers him with cash benefits for retirement, widow's pension, unemployment and disablement pension.

In initiating the Act the Ministry of Health proposed to construct health centers in which physicians could join in the work as a team, in which there would be available surgeries and consulting rooms equipped with the latest and most efficient forms of apparatus and also comfortable waiting rooms. The available evidence does not indicate that any one of these health centers has yet been opened. Preceding the initiation of the Act, the Ministry of Health issued a considerable number of propaganda bulletins said to be "instructional."

### PRIVATE PRACTICE

By November of 1948 it was clear that the private practice of medicine in Great Britain was disappearing. As might have been expected, the Ministry did not view the disappearance of private practice with alarm. Indeed, it becomes apparent that such disappearance must have been contemplated. For instance, although a patient who consults a private practitioner is paying taxes for medical service, a chemist or druggist cannot fill a prescription for this patient without charging the patient, whereas a prescription filled for a physician working under the Act is provided to the patient without further cost.

Physicians have the greatest difficulty in securing beds in hospitals for private patients.[2] After describing the various difficulties which have developed in trying to sustain private practice, this editorial concludes, "There is no mandate in the Bill for the killing of private practice by the imposition of vicious penalties, and we suggest that the Minister and his advisers would do well to think again."

When the time came for the physicians to receive their first quarterly payments under the National Health Service, the doctors received far less money than they had anticipated. The basic salary of $1,200 was proposed by the Minister of Health but rejected by the British Medical Association. The Association considered it the opening wedge to a salaried state medical service. Some doctors wished to receive the basic salary after they discovered that they could not live on the incomes received by the capitation technic. All sorts of deductions were made from doctors' incomes for a variety of reasons which the doctors had not foreseen. The payments for dentistry rose so precipitously that they constituted a totally unexpected drain on the costs of the service. A general practitioner is permitted to take 4,000 persons on his list; they discovered shortly that they were being overwhelmed with trivial complaints. In many instances practice has been reduced to a question and a prescription.

### SECURING EYEGLASSES

Let us see how a patient secures a pair of glasses under the National Health Service in accordance with the regulations. First, there must be a note from the family doctor that the eyes need testing. The regulations say, "Your family doctor (whether or not he himself is taking part in the service) will give you this note if he agrees that you should have your sight tested. Ask him for it." If the patient is unwilling on conscientious grounds to get a doctor's certificate, he may apply to the executive council in his area. The patient can have the sight tested either by a doctor who is known as an ophthalmic medical practitioner or by an optometrist, who is called an ophthalmic optician. A list of these persons is posted in the post office, also in the local executive council office. When the patient has decided which of the examiners he wants, he calls on him and hands him the family doctor's note. The patient must supply his national registration identity number. Then when the sight has been tested, he is requested to sign a certificate, so that the ophthalmic medical practitioner or the ophthalmic optician can obtain the fee from public funds. If the person tested is under 16 years of age, someone else has to sign for him.

Next the patient goes home and some days later receives through the mail the prescription for the glasses. He now chooses from a list of dispensing opticians in the post office one who will make the glasses. The patient then goes to the optician, who makes the necessary measurements and also tells him which type of glasses he can have without charge and when they will be ready. Here he again gives his identity number and also signs a new form, so that the optician can get money from the government. Because there is a shortage of frames, the patient is requested to bring along some frames if he has some. Anything outside the prescribed frames and glasses is paid for in a seperate payment.

If the patient loses or breaks the glasses less than two years after being tested, he can go back and get another pair but has to pay the cost himself unless he can prove that the loss or damage was not caused by his own carelessness. There is a special procedure and a number of forms involved in this phase of the service. If the patient breaks the glasses or loses them more than two years after he first got them, he has to do the whole thing over. That is an exact statement of the procedure from an official document.

The following account is of the experience of a patient who decided to get some glasses:

> I felt all the summer I needed new glasses, so at length I decided to get them. Then I found that I must first see my doctor. That meant going to his surgery, which is only open certain evenings at 6 o'clock to 6:30, waiting your turn to see him in a cold bare passage with a wooden bench to sit on. Then all he does is to sign a 3 by 1½ inch flimsy bit of paper saying that he has examined one's eyes and found that one was in need of new glasses; but he did not trouble to even look at my eyes, so the paper is a lie. Then I had to take it to an optician, who said, "Which of the two specialists would you choose to see?" I said, "Do not you test eyes?" "Oh no, we only carry out the doctor's prescription. If you come to us you must be tested by a doctor." So I chose one, and then they made an appointment for me with him after requiring to see my National Identity Card!! I've carried it about with me since 1938, and that is the first time I've been asked to show it. One week to wait for the appointment and another expensive journey to Bedford to make. The doctor took three to four minutes to look at my eyes and

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[2] The Private Patient, editorial, M. Press **220**: 355 (Nov. 3) 1948.

put me through a few tests, another two minutes to ask my age, my full name, and my Identity Number—("show me your card"). Next, "Your doctor's certificate, please." "I haven't it. I did not know it would be required again." "Well, without it you can have no glasses. If you have lost it, you must get another from your doctor and send it to me. It has to be sent on to the Ministry for a license to be granted. Then they (the Ministry) will send you an order to procure your glasses, which you will take to your optician, who will then contact me, and I will then send your prescription to him. This will take three weeks or a month. Next the glasses will be made, which may take a further eight to twelve weeks!!! The reason for such a time being shortage of glass for the lenses. No choice of rims is given. If you don't like the ones provided, you must pay for those you do like yourself."

### OVERPRESCRIBING

One of the greatest evils of the new British Health Act is overprescribing. Thus, Dr. Harvey of Dorchester, Dorset, writes[3]:

> . . . *since July 5 I have already written in my surgery alone* 970 prescriptions, 1 per 4 patients on my list, excluding all prescriptions on my rounds, and this in the less busy summer months. One is amazed by the extras such as douches and nozzles, eye baths, pessaries, etc., one is invited to supply . . . More strange and more alarming still is the undoubted fact that the patients think they get all these extras free because the Government supplies them. I am firmly convinced that the huge cost of prescribing now piling up will in the short run return to the public for payment by increased taxation or other methods no less distasteful. The working classes will pay the largest share, as they represent the greater proportion of the population, and doctors may quite probably be compelled to pay by reduction of capitation rate as well as taxation.

Particularly serious in this performance is the bureaucratic domination of the tiniest details involved in medical care. According to the *British Medical Journal*[4]: Members of the profession complain because they cannot get clothing coupons which entitle them to purchase white coats. The government permits them to get white gowns but not white coats. They are entitled to a coupon equivalent to the purchase of six gowns or coats and to a replacement coupon for three gowns or coats. The application must, however, be made to the Ministry of Health in Scotland, and for Northern Ireland to the Secretary of the British Medical Association.

To one of the state medical licensing boards in the United States came recently a letter from a British physician which says:

> After four years of practice here I have had enough. With the event of socialized medicine, state controlled, the last vestige of freedom was taken from us. Medicine here is now pure mockery of the art and science: mass produced medicine; bottles of placebos; 50 or 60 persons per surgery session. I forecast that in a few years the doctors here will be in state of stagnation.

Particularly interesting is a bulletin from Great Britain entitled "Remuneration of Doctors Under the National Health Service," dated January 1949. A general practitioner with 2,000 persons on his list has a net income of £1,090, or about $5,000, per year. With 3,000 persons it moves up to $8,000 per year, and with 4,000 persons to almost $9,000 per year. The capitation fee varies from area to area. The bulletin tells the doctors that there are many possibilities to add considerably to their earnings within the general medical and maternity services. He might add to his earnings by mileage payments if he has to travel much in rural areas or by inducement payments, provided that he will settle in a difficult or unpopular area. In these circumstances the Minister has some extra money to distribute. He can train an assistant and get a grant for supervision, plus the salary of the assistant. He can get $21 for a maternity case for a patient on his own list, and if he has special qualifications, so that his name is entered as an obstetrician in addition to being a general practitioner, he gets $29.40 for an obstetric case. By my computation the difference here between a general practitioner and an obstetrician is $8.40 per case. If he supplies drugs to his patients or puts in dressings, he is allowed 2 shillings 6 pence per year for every hundred persons on his list, and if he dispenses drugs by an arrangement with the Executive Council, he gets a flat rate of 6 shillings 6 pence per year for each person on his list, and additional payments, provided the Executive Council agrees, for especially expensive items. Moreover, he gets extra remuneration in the form of a grant from the Hospital Management Committee if he takes care of the persons who work in the hospital. He is allowed 2.75 per cent interest on compensation money that the government still owes him. He also gets between $8 and $9 for sitting on various boards and committees, and than he is allowed fees for private patients. One doctor wrote that he still has 3 private patients.

### THE SPECIALISTS

The Spens Committee was appointed by the British government to determine the remuneration of specialists and their selection. They recommended a range of remuneration for specialists from $6,000 to $20,000 per year, but any remuneration above $10,000 a year depends on an award of special distinction made by a so-called Special Awards Committee. This committee selects the specialists who are to receive higher financial rewards than the normal rate. Thus far it is reported that only five specialists in Great Britain received the top income of $20,000 per year. Moreover, the specialists are already suffering from the difficulty of obtaining hospital beds for their patients unless they are enrolled in the service. Difficulties arise also because of the power of health councils in various areas to determine who may act as a specialist in any hospital.

The specialists may be credited, through the Royal Colleges of Physicians, Surgeons and Obstetricians, with having damaged the negotiations between the British Medical Association and the Ministry of Health by acting independently of the whole profession. On May 5, 1948, the British Medical Association decided that the profession would not refuse to cooperate in carrying out the Act, although previously a majority of the profession had voted against participation. However, the deadlock which had led the British Medical Association to advise its members to refuse to enter the scheme was broken after an exchange of letters and conferences between the presidents of the Royal Colleges and the Minister. These letters discussed the main points which disturbed the profession. Following these negotiations, the British Medical Association resumed its negotiations with the Minister. This independent action by the specialist groups unquestionably weakened the position of the British Medical Association in endeavoring to present the point of view of the medical *profession as a whole.*

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[3] Harvey, H. C.: Huge Cost of Prescribing, Brit. M. J. (supp.) 1:122 (Sept. 11) 1948.

[4] White Coats and Operating Gowns, Brit. M. J. (supp.) 2:82 (Aug. 14) 1948.

Under the Spens Committee proposals a national committee, predominantly professional in composition, selects the individual specialists whose outstanding distinction merits higher financial rewards. The expenses of specialists reasonably incurred in the course of work are met, and the specialists are entitled to definite holidays and extended leaves for study or research without assuming the financial liability for a substitute.

Because of the varying values of money, the 1939 values are the basis for calculation.

### THE UNIVERSITIES AND THE HEALTH SERVICE

As was stated previously, the universities and teaching hospitals were exempted from the operations of the National Health Act. Dr. J. Henry Dible,[5] Professor of Pathology of the University of London, records his experience and the change in his functions which has come about with the arrival of the National Health Act. A professor is usually appointed because of his contributions to his subject arising from original investigations, his reputation for learning and his ability as a teacher. These qualities do not develop without a large measure of free time for thought and reading and also for research. When the professor is appointed to a chair, he assumes administrative responsibility for his staff. Medical professors have, in addition, to these duties, to care for patients, establish modern clinical diagnostic tests and, if the professor is a pathologist, administer the postmortem service. These services continue throughout the year and are not lightened by long vacations. Professor Dible reports that the task has become impossible as a result of the National Health Service. "The universities," he says, "are dragged in as participants." The professors are regarded as medical specialists and therefore become servants of the hospitals and through them of the board of governors and the Ministry rather than members of a university staff. The professors are called on to sit on innumerable committees concerned with hospital administration and finance and must concern themselves with the training of the specialists of the future. He says:

> Within the past week I have received the minutes and agenda from a hospital board of governors amounting to 58 pages and papers from an educational institution amounting to 49 pages; and these represent the labours of only two of the considerable number of committees upon which circumstances are forcing me to sit. Much of this work is not in the remotest degree concerned with learning and the advancement of my subject. . . . A great deal of this material is a recent fungous growth, much of it created by individuals who have been appointed to administrative offices which are new creations, and justify their existence by busy promotion of schemes which are of questionable value.

Professor Dible mentions the Spens Report on the remuneration for clinical specialists and comments, " . . . the simple-minded consultants have, it seems, swallowed the bait, each no doubt believing in his own heart that he will be one of the favoured worthies to whom the higher rewards will go." Incidentally, the universities are alarmed because the medical professors who are qualified as clinical specialists now receive rewards far beyond those available to professors on the faculties of arts, science, law or engineering.

For himself, Professor Dible says:

> If a choice is to be made between on the one hand the large financial gains offered to hospital specialists, with which must be coupled the conditions of service under the Ministry of Health, and on the other the status and emoluments of a professor with the traditional freedom and privileges of that office, even at a much lower salary, I should not hesitate to accept the second.

Subsequent issues of the *Lancet* have brought forth many letters of agreement with the point of view of Professor Dible.

Dr. A. St. G. Huggett[6] of St. Mary's Hospital Medical School in London has emphasized the great lack of young men available to fill posts in the universities. Thirty-nine per cent (62 appointments out of 160) of available vacancies in nonclinical departments remained without any applicants. In 17 appointments, medically unqualified personnel have been put to work. Of the 81 remaining posts, to which medically qualified persons were appointed, for 30 there was only 1 applicant. He says, " . . . not enough idealists are coming forward to meet the requirements of the academic side of the profession under modern conditions." The increased needs arising out of the Spens Report, plus the postwar cost of living, is so impairing recruitment that the laboratory departments in the universities are being extinguished. Professor Huggett points out that nobody can work for more than twenty-four hours a day and that the responsibilities added by the National Health Service are in addition to the duties usually carried on by the full time teachers in the medical schools.

Professor John Grieve[7] of the Medical School, Dundee, looks with alarm on the possibility that the professors should not do clinical work. He agrees with Professor Dible that excessive administrative appointments are productive of verbiage in the form of long memorandums and reports. "Associated with this is the excessive use of standing committees," he says. The National Health Act provides for a medical education committee in addition to the medical faculties. Thus, even for the universities which have been exempted from the Act and for the denominational hospitals which have refused to serve under the Act there is no happiness in Great Britain.

Perhaps six months is too soon to judge the workings of the British National Health Act. Several of my close British friends who hold positions in the British Medical Association have urged that Americans do not comment or report on the British Health Act since it is still on trial. However, one officer of the Ministry of Health told me that it might take fifty years before the Act could be working satisfactorily, and a Scotchman suggested that a hundred years would come closer to a proper estimate.

In the *British Medical Journal*[8] is a statement by the secretary of the British Medical Association, who says, "Of the serious current problems the loss of income, often amounting to hardship, of particular groups and particular individual practitioners is perhaps the first." A committee has met with the Minister of Health and urged an increase in the mileage fund in order to deal with the problem of rural practitioners, but the action by the Minister has not become available.

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[5] Dible, J. H.: The Universities and the Health Service, Lancet 2:861 (Nov. 27) 1948.

[6] Huggett, A. St. G.: The Universities and the Health Service, Letters to the Editor, Lancet 2:945 (Dec. 11) 1948.

[7] Grieve, J.: The Universities and the Health Service, Letters to the Editor, Lancet 2:946 (Dec. 11) 1948.

[8] Hill, L.: The Secretary Reports, Brit. M. J. (supp.) 1:43 (Jan. 1) 1949.

A second problem is the application of the Spens Report with a view to determining proper remuneration for both urban and rural practitioners and the third problem is the increase of work, particularly work of a nonmedical character. "This," says Dr. Hill, secretary of the British Medical Association, "must await the Report of the Government Certificates Committee."

Apparently the representatives of the medical profession are having trouble with the Ministry over payment for the first four days of July, over settling up the National Health insurance payments, over payments in connection with the maternity scheme. To quote Secetary Hill, "A steady but heavy pressure is being applied to the Ministry on a wide front."

Innumerable problems arise in relation to proper remuneration for a wide variety of medical service. There was, for instance, the question of payment to a surgeon which has a maximum of £75, or about $322, for an operation, but in some operations two surgeons work together, and apparently regardless of how much service is involved the £75 remains.

There is the question of filling out of the forms in relation to prenatal care and the amount of money the doctor gets if he happens to miss one examination. There is the problem of the doctor who is called to attend a miscarriage without having made previous arrangements for maternity medical service. The doctor is sometimes called when a patient bleeds after extraction of a tooth. That raises an issue between the doctor and the dentist and the question as to whether or not the money comes out of the central pool. There are high charges for use of the telephone in securing the ambulance or in getting a patient into a hospital. These complaints fill page after page of the supplement to the *British Medical Journal* and the departments of correspondence, as well as the various sections of the *Lancet*. In a recent issue of the *British Medical Journal* at least four letters appeared from doctors urging the medical profession to resign from the service.

Sir Francis Fraser,[9] Director of the British Postgraduate Medical Federation, discusses "Medicine in the New Social Order." He recognizes that there is great confusion in the operation of the National Health Act.

> "Large numbers of inspectors from the various ministries and departments, information bureaus, resettlement officers, health visitors, almoners, social workers, and so on, are being appointed to ease the difficulties of personal readjustment. Will they not suffice?"

He believes that doctors will have to concern themselves with education of the public into the new social order. "Lay officials cannot take his place." As the very latest view that I have been able to secure from England, I quote this paragraph:

> At present the general practitioner is having a bad time. He has so much to do that he is in danger of losing that joy in work well done which is essential to happiness. This is, I believe, a passing phase, and I hope that before long he will be relieved of much of the certification and paper work of all kinds which could be done as well by others, with the development of health centres and group practice, he should be relieved to an increasing extent of his present almost intolerable burdens.

## CONCLUSION

1. No doubt the time is too soon to pronounce an ultimate verdict on the effects of the British National Health Act on the health of the people of England. Nevertheless, after six months of operation of the National Health Act the statements coming from British physicians themselves indicate that there has been a deterioration in the general quality of medical service.

2. Although there is a shortage of doctors, nurses, hospitals, health centers, drugs and people trained to handle the paper work which is an excessive burden on the physician, British physicians having yielded are attempting to make the system work.

3. An organization of British physicians called the Fellowship for Freedom in Medicine, headed by Lord Horder, has undertaken a campaign to protect the freedoms of the physician. The objects of the Fellowship are:

A. To insist upon the preservation of the highest standards of medical practice.

B. To protect the public and the medical profession from state monopoly in Medicine.

C. To preserve the ethical and professional freedom of the individual doctor in the service of his patients, and to maintain the status of the general practitioner, including his financial security.

D. To oppose all encroachments by the State on the independence of medical educational institutions, and to maintain the academic freedom of all teachers of Medicine.

E. To define the limits of State Medicine so as to protect the common law rights of the public and of the medical profession in relation to all types of independent practice.

This organization feels that the British Medical Association has failed in opposing the serious infractions on the practice of medicine made by the government and in giving information to its members as to the workings of the Act. Its latest bulletin (January 1949) indicates that a vast cumbersome machinery makes it difficult for young men to get into practice.

4. A consensus of letters signed by British physicians reveals the following fundamental criticisms:

(*a*) The average man and woman feels that a cleft has been dug between him and his doctor. The doctor finds himself spending most of his time filling in forms, to the great detriment of the really sick.

(*b*) . . . because of the large list I am kept tremendously busy dealing with trivialities and form-filling, and am not therefore able to concentrate properly on doing my work to the best of my ability.

(*c*) I am the third generation in my family in this practice . . . my total mileage has been about 8,000 in six months . . . the mileage allowance is £45 ($180).

(*d*) It is now painfully obvious to the general public that the service they are getting is thoroughly . . . inferior.

(*e*) The standard of Medicine has deteriorated gradually since July.

The Fellowship for Freedom in Medicine says that only one of Dr. Dain's freedoms for the doctor guaranteed by the government has not yet been interfered with, and that is the right to speak or write about medicine or the service without hindrance.

5. Private practice in England has been reduced so that it is now nonexistent in many parts of the country.

6. There is no reason to believe that a similar system would be any more efficient or satisfactory in the United

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[9] Fraser, F.: Medicine in the New Social Order, Lancet 1: 131 (Jan. 22) 1949.

States. Doctors simply cannot see, give diagnosis to and treat patients in a process in which they are overwhelmed by trivial complaints. If a doctor tries to see 40 patients a day, he gives all of them less than what medicine requires. If he tries to see 100 patients a day with a view to developing an income, he is reverting to the kind of diagnosis and treatment that prevailed in a previous century.

7. Inevitably the nationalization of medicine will lead into the nationalization of every phase of American life. Herbert Spencer wrote:

> The price of liberty is external vigilance. But it is far less against foreign aggression against liberty that this vigilance is required than against the insidious growth of domestic interference with personal liberty.

# Clinical Notes, Suggestions and New Instruments

## FATAL AGRANULOCYTOSIS OCCURRING DURING PROPYLTHIOURACIL THERAPY

### Report of a Case

BENJAMIN JULIAR, M.D.
Detroit
and
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Parkersburg, W. Va.

Shortly after the use of thiouracil as an antithyroid drug became common its potentialities as a depressant of polymorphonuclear cell formation became apparent. A number of cases were reported in which this complication resulted in death. The profession was cautioned that great care be exercised in its use and that frequent blood cell counts be done during the course of therapy. The development of propylthiouracil resulted from the search for a more potent and less toxic drug.

Propylthiouracil is the only antithyroid drug listed in the 1948 edition of "New and Nonofficial Remedies." It is cautioned that this drug is capable of producing toxic reactions the severity of which is unpredictable—the most severe and serious one being agranulocytosis.

That leukopenia can occur with the use of propylthiouracil has been mentioned in a number of articles. McCullogh, Hibbs and Schneider[1] reported 1 case of granulocytopenia in 218 cases studied. Eisenmenger and Steele[2] reported a case in which pronounced leukopenia developed and thyrotoxicosis increased in severity while propylthiouracil was being administered. Livingston and Livingston[3] reported a case in which both agranulocytosis and jaundice developed. The white blood cell count fell to 1,000 cells per cubic millimeter with no granulocytes. Their patient, however, responded to the use of penicillin and the withdrawal of propylthiouracil. Bartels[4] analyzed 672 cases in which propylthiouracil was being given in preparation for thyroidectomy. Thirteen definite reactions were recorded. Significant leukopenia, granulocytopenia or both developed in 7 patients and agranulocytosis in 3.

Because of the low incidence of complications during therapy with this drug laxity has crept in. Propylthiouracil is now even being prescribed for the suppression of certain "nervous and anxiety states," giving the impression that its use is without danger and supervision can be superficial.

We believe that the case being reported here is the first instance in which agranulocytosis developed during administration of propylthiouracil, was resistant to treatment and resulted in the death of the patient.

### REPORT OF A CASE

E. J. D., a 25 year old white married woman, was seen by one of us (B. J.) on April 13, 1948. The chief complaints were nervousness, pronounced tremor of the hands and weight loss. She had felt well until December 1947, at which time she had had a spontaneous miscarriage. The bleeding incident to this was not pronounced. However, the loss of this pregnancy had upset her greatly, since she had been very anxious to have another child. In January 1948 she had a severe attack of sinusitis which necessitated paracentesis and irrigation of both maxillary sinuses. About this time, also, a disturbing marital situation arose. The patient discovered that her husband had been married previously and had not obtained a divorce from his first wife.

She began to note that she was very "nervous," would cry readily and would lose her temper at the slightest provocation. A decided tremor of the hands became apparent, and this was so severe at times that she was unable to control it and would drop whatever she was holding. Prior to the onset of the present illness her usual weight varied between 110 and 115 pounds (50 and 52 Kg.). This had declined definitely. Her appetite became poor, and there was decided diminution in her general strength.

The past history by systems elicited the following information. An appendectomy had been performed in 1942 for acute appendicitis. Tonsillectomy had been done at 6 years of age for recurrent sore throat. She had noted repeated episodes of generalized urticarial eruption and swelling of the lips when she was "nervous, tired or mentally upset." Rapid heart action had been noted during the previous three months. She also had a feeling of having to breathe fast "to catch up with herself." During the past few months she had been smoking about 20 cigarets daily and was consuming about 15 cups of coffee a day.

*Physical Examination.*—The patient was nervous appearing, fidgety and uncooperative. She cried a good deal while the history was being taken. She appeared fairly well developed, but showed definite evidence of weight loss. She was 61½ inches (156 cm.) tall and weighed 99½ pounds (45 Kg.). The temperature was 99 F.

Moderate exophthalmos, slight stare and lid lag were noted. The thyroid gland was diffusely enlarged, but more so on the right. A bruit of moderate intensity was heard over the right lobe of the thyroid. Examination of the lungs revealed no abnormalities. There was no demonstrable cardiac enlargement. The rhythm was regular; the rate was 150 per minute. No murmurs were heard. The blood pressure was 140 systolic and 70 diastolic. The muscle strength of both upper and lower extremities was definitely diminished. A fine tremor of the extended fingers was present. The results of remainder of the physical examination were essentially normal.

The basal metabolic rate was + 51 per cent. The blood cholesterol was 79 mg. per hundred cubic centimeters. The electrocardiogram was normal except for pronounced sinus tachycardia. The result of the Kahn test was negative. The urine was normal. A routine blood cell count revealed: hemoglobin 12.7 Gm. (89.4 per cent), red blood cells 5,010,000 and white blood cells 6,800, with 43 per cent polymorphonuclear cells, 50 per cent lymphocytes, 3 per cent monocytes and 4 per cent eosinophils.

The conclusion was that this patient had (1) hyperthyroidism, (2) recurrent urticaria and angioneurotic edema, (3) chronic sinusitis and (4) psychoneurosis—severe, situational. The following regimen was started: propylthiouracil, 50 mg. four times a day; phenobarbital, 30 mg. three times a day; large doses of multiple vitamins, and high caloric feedings.

The patient was next seen about two weeks later. The symptoms previously present had diminished in severity. Her weight was now 103 pounds (47 Kg.). The blood cell count was essentially unchanged from that previously given. She stated that she was returning home, to Memphis, Tenn., and a résumé of her record was sent along for transmission to her physician there.

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[1] McCullogh, P.; Hibbs, R. E., and Schneider, R. W.: Propylthiouracil in the Treatment of Hyperthyroidism, Am. J. M. Sc. **214**: 545-552 (Nov.) 1947.

[2] Eisenmenger, W. J., and Steele, J. M.: Leucopenia Following Use of Propylthiouracil, J. A. M. A. **135**: 510-511 (Oct. 25) 1947.

[3] Livingston, H. J., and Livingston, S. F.: Agranulocytosis and Hepatocellular Jaundice Following Use of Propylthiouracil, J. A. M. A. **135**: 422-425 (Oct. 18) 1947.

[4] Bartels, E. C.: Agranulocytosis During Propylthiouracil Therapy, Am. J. Med., **5**: 48-52 (July) 1948.

Nothing further was heard from her until August 8, when she came under the care of Dr. Harris at Parkersburg, W. Va. Her chief complaint then was sore throat of five days' duration. She stated that she had taken the propylthiouracil for only about two weeks after she left Detroit. Her physician in Memphis advised that it be discontinued. The reason for his doing so is not known. Strong iodine solution was prescribed instead. After using the latter medication for one week she noted a recurrence of all the symptoms previously complained of and propylthiouracil therapy was again started. The dosage advised is also not known. She had continued using this drug. In addition to the sore throat, she complained of fever (worse at night), recurrent chills, extreme thirst and a vesicular eruption in her mouth. Headache and blurring of vision were also noted. On her admission to the hospital in Parkersburg her temperature was 101 F.; the pulse was 90 per minute, and the respirations were 20 per minute. An extensive urticarial eruption covered most of her body. The gums were slightly swollen and tender. An oral eruption was not noted at the first examination. The lungs were clear. The heart tones were regular and of good quality.

A blood cell count done on August 9 showed: hemoglobin 12 Gm., red blood cells 4,470,000 and white blood cells 5,700, with 32 per cent segmented polymorphonuclear cells and 68 per cent lymphocytes. Results of agglutination for typhoid O and H and paratyphoid A and B organisms were all negative. The blood culture was negative.

Six hundred thousand units of duracillin® (crystalline procaine penicillin G) were given four times a day. Treatment with the usual supportive measures was instituted. In the meantime the temperature had risen to 105 F; it remained between 103.4 and 105.4 F. for the next four days. Ulcerative lesions appeared in the mouth on August 9.

In spite of the continued use of penicillin, the white blood cell count fell to 2,200 on August 10 (6 per cent polymorphonuclear cells and 94 per cent lymphocytes) and to 1,500 on August 12 (2 per cent polymorphonuclear cells and 98 per cent lymphocytes). A transfusion of whole blood was started on August 11, but this had to be discontinued after only 100 cc. had been given because of a severe reaction. The patient became delirious and irrational; jaundice became apparent, and she died on August 12. Permission to perform an autopsy was not obtained.

### COMMENT

One cannot say with certainty that the agranulocytosis which developed in this case was due to the administration of propylthiouracil. However, we believe that it is fair to assume that this drug was the most likely cause. The patient's failure to survive precluded any studies which might have been done to establish this fact. We were also unable to ascertain the dosage of propylthiouracil the patient was taking. Several letters sent to the physician whom she had consulted in Memphis were not answered. One can only conjecture about the role her past allergic history played in the reaction.

This patient showed no response to the administration of penicillin. The polymorphonuclear cells continued decreasing in spite of huge doses of penicillin. The cases of leukopenia and agranulocytosis (resulting from the use of propylthiouracil) reported in the literature showed a favorable reaction to withdrawal of the drug and administration of penicillin.

### SUMMARY AND CONCLUSION

A case of agranulocytosis, probably resulting from the use of propylthiouracil, is presented. The exact dosage taken could not be determined since the patient was not under our observation during a good deal of the time she was taking the drug. The agranulocytosis was resistant to very large doses of penicillin, and resulted in death. To our knowledge this is the first reported death from agranulocytosis occurring during the administration of propylthiouracil.

# Council on Pharmacy and Chemistry

## REPORT OF THE COUNCIL

*The Council has authorized publication of the following statement from the Therapeutic Trials Committee, a standing committee of the Council on Pharmacy and Chemistry.*

AUSTIN SMITH, M.D., *Secretary.*

## FUNDAMENTAL SCIENTIFIC RESEARCH ESSENTIAL TO PROGRESS IN APPLIED THERAPEUTICS

The Therapeutic Trials Committee of the Council on Pharmacy and Chemistry of the American Medical Association was organized especially to assist in the development and evaluation of clinical trials of therapeutic measures that require cooperative effort. The Committee, however, is keenly aware that advances in clinical therapy must be preceded by fundamental researches into the basic processes that condition life in its normal and pathologic manifestations. Without a fuller understanding of these abstruse problems, genuine advances in therapy are limited, and without such fertilization the whole field would sooner or later become virtually sterile. The Therapeutic Trials Committee therefore wishes to express its appreciation of the far-sighted wisdom of the various foundations, research councils and industrial firms and associations which, although interested primarily in special applied fields, have the vision to devote a considerable portion of their funds to fundamental research. Even though this may seem to hold little or no promise of immediate application, it is vitally essential if real advances are to be made. To make this effective requires assurance, not only of continued but of greatly increased support, in which these foundations and other organizations can be very helpful, and indeed all who are interested in advancing medical science and practice. It is a wise investment and one that is indispensable to the object of better treatment of disease, to which the Therapeutic Trials Committee is devoted.

## NEW AND NONOFFICIAL REMEDIES

*The following articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.*

AUSTIN SMITH, M.D., *Secretary.*

**PROTEIN HYDROLYSATES** (See THE JOURNAL, March 6, 1948, p. 693).

The following dosage form has been accepted:

WYETH, INC., PHILADELPHIA

**Lactamin *(Powder)*:** 0.45 Kg. cans. A pancreatic digest of lactalbumin containing amino acids and polypeptides equivalent to 92 per cent hydrolyzed protein providing 90 calories per 28.35 Gm. It has 50 per cent of its total nitrogen as amino nitrogen and contains no fats or carbohydrates. To be administered orally.

**INFLUENZA VIRUS VACCINE, TYPES A & B** (See THE JOURNAL, Dec. 27, 1947, p. 1153).

The following dosage form has been accepted:

ELI LILLY & CO., INDIANAPOLIS

**Influenza Virus Vaccine, Types A & B:** Packages of 1 cc. and 5 cc. vials. Preserved with Merthiolate 1 : 10,000.

**CHLORGUANIDE HYDROCHLORIDE** (See THE JOURNAL, Aug. 21, 1948, p. 1532).

The following dosage form has been accepted:

SYNTAM LABORATORIES, INC., LONG ISLAND CITY, N. Y.

**Tablets Chlorguanide Hydrochloride:** 0.1 Gm.

**DIENESTROL** (See THE JOURNAL, Nov. 22, 1947, p. 773)

The following dosage form has been accepted:

RARE CHEMICALS, INC., HARRISON, N. J.

**Aqueous Suspension Dienestrol:** 5 mg. per cc., 10 cc. vials.

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SATURDAY, MARCH 5, 1949

## METHODS OF CASE FINDING IN TUBERCULOSIS

Although passing somewhat out of the limelight, the "tuberculin test" method of case finding still has great practical value. Under certain conditions it is the only method practicable, and it will probably continue to be useful, especially in sparsely infected regions, as long as tuberculosis remains a health problem. Notwithstanding the fact that the more recently developed miniature roentgenogram method has taken first place in effectiveness, at least in the larger and more heavily infected population centers, neither method can be used to the total exclusion of the other.

While the "practical value" of any method of case finding may be dependent on the number of cases of tuberculosis found in a given community, yet case finding, which results in the saving of lives, should not be reduced strictly to a "cost per case" basis. Furthermore, tuberculous persons vary in their danger, depending on the number of bacilli they expectorate, the number and kinds of contacts around them and many other factors. In some localities, relatively harmless cases will be found for a few dollars each, while in others, hundreds of dollars must be spent to find a dangerous case. Control of tuberculosis is similar to fire prevention and control. One cannot foretell how an unknown case of tuberculosis will behave, any more than one can foretell the outcome of a fire. Some may burn out spontaneously; others can be extinguished, while still others destroy whole areas or cities.

The facilities used in case finding have continually been improved. At first the only means of finding tuberculosis was by physical examination; then came the discovery of the bacilli and the use of the microscope, and then the roentgen ray. Following this the tuberculin test was applied with much success, and finally the miniature roentgenogram was developed.

The mass roentgenologic survey method in large communities is probably most effective and cheapest; this is true especially of the 70 mm. machine, which may be used with all the facility of the earlier developed 35 mm., and yet possesses most of the advantages of the larger (14 by 17 inch) films. The cost is not large, and the results are probably of more direct value than those obtained with any other method. The roentgenologic method finds the significant lesions which can be quickly treated.

Several things roentgenologic surveys do not do. Since roentgen shadows are not specific they are not pathognomonic of tuberculosis. Subsequent sputum analyses and tuberculin tests are necessary in 3 to 5 per cent of all cases surveyed, often revealing that conditions which at first were called tuberculosis actually are some other disease. Second, the roentgen rays will not always reveal the presence of tuberculous lesions, since about 30 per cent of the chest area is hidden, and since many early lesions do not cast shadows. Finally, the cost of mass roentgenologic surveys is not as low as the inexpensiveness of miniature roentgen film might lead one to believe. The total cost of finding an average case of tuberculosis with a good miniature x-ray apparatus ranges somewhere between $100 and $300.

The tuberculin test method, as introduced by Opie, Long, Meyers and a large number of others, has many advantages not possessed by any other technic. This method causes both laymen and physicians to become "tuberculosis conscious"—one of the first requirements of any tuberculosis program. A tuberculin test also helps to rule out nontuberculous disease. When the reaction is positive in infants and young children and even in young adults, the test is a certain indication of proximity to open tuberculosis. Because more persons will reach adult life in the future without infection the test will become increasingly useful.

One of the greatest benefits of tuberculin testing in survey work is found in communities where only 30 per cent or less of the population has a positive tuberculin reaction. Obviously the majority of the roentgenograms of those with negative tuberculin reactions would be wasted. The tuberculin method in such circumstances should be used first and followed by roentgenograms of the positive reactors. Finally, when used fully, the tuberculin test is perhaps the best index of the efficiency of a tuberculosis control program in any community.

A good example is afforded by Jordan,[1] who surveyed the schools of his district over a period of ten years. The first time he found 13.9 per cent positive reactors and the last time 4 per cent. This phenomenal decrease was attributed to several factors: First was education. Talks and demonstrations were given to students and parents, and literature on tuberculosis was disseminated. A follow-up was made by the field nursing service and roentgenograms were taken of all positive reactors; careful histories were taken and investigations of the home conditions were made. A new roentgenogram was taken of all reactors within three months to one year. Contacts were broken with all known cases of tuberculosis. Finally, the importance of a cattle-testing program to eliminate bovine tuberculosis was stressed.

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[1] Jordan, L. S.: Summary of a Ten-Year Mantoux Program in Rural Minnesota, Journal-Lancet 62: 384-385 (Oct.) 1942.

In April of 1940 roentgenologic examination of a small school of sixty students was made. Of the 5 students who reacted to old tuberculin, 4 were examined roentgenologically. The fifth refused to have a roentgenogram taken. In April 1942 the school was retested, and of 62 in the school, 51 reacted to tuberculin. The boy who had refused roentgen examination two years before was found to have far advanced pulmonary tuberculosis, and was probably the focus of the infection.

The cost of the tuberculin method apparently includes only cost of tuberculin syringes, "hypo" needles and tuberculin. Actually the total cost is much greater. The cost per patient was estimated by Davison and Troy[2] in Chicago at something more than $500. Most of the cases were found in the high school age group or older. The number of cases in the first grade or preschool age group was one tenth that in older groups. These authors virtually condemned the method in survey work. Hewell and Nimitz[3] obtained almost identical figures in Cincinnati. However, where the number of positive reactors is small the total cost is less because the roentgenologic work is much less. The cost per case, conversely, becomes higher because fewer cases exist. The gain is then reflected in the lower death rate. Estimates of the cost depend on the number of persons surveyed and disregard the cost per case entirely; the "hidden values" cited earlier make cost accounting per case seem futile.

The tuberculin survey method is still the most practical in communities where the infection rate is low. Positive reactors may be given roentgen examinations after a tuberculin survey on entering and on leaving school. Follow-up of all contacts should be made and health education intensified.

In larger communities where the infection rate is high probably the best method is to give roentgen examinations to everybody over 15 years of age and the tuberculin test to all those with suspected lesions. Although a few small lesions will escape the roentgenologic survey, the number will not be of great importance. The cost of each method when used in its respective proper setting is probably about the same, based on the total cases surveyed. The roentgenogram is cheaper per number of cases found and number of deaths from tuberculosis, while the tuberculin test method is more useful in small communities, and is, above all, a sound index of the control of the disease. These two principal methods should and do supplement each other, the choice and sequence depending on time, place and available facilities.

## AID FOR CHRONIC ILLNESS

The American Medical Association has joined with the American Hospital Association, the American Public Health Association and the American Public Welfare Association in an Interim Commission on Chronic Illness[1] to promote programs for the control of chronic illnesses in every state. The commission is the outgrowth of recommendations from the Section on Chronic Disease of the National Health Assembly, over which Dr. James R. Miller, a member of the Board of Trustees of the American Medical Association, presided. He is chairman of the Interim Commission and will be a member of the permanent commission. About one sixth of the population of the United States has some chronic disease. At least 2,000,000 persons in the United States are at this time chronic invalids. The facilities and the methods for care of those with chronic diseases are in general inadequate in almost every section of the country. The Interim Commission has suggested the following objectives for the permanent commission:

1. To modify the attitude of society that chronic illness is hopeless; to substitute for the prevailing overconcentration on provision of institutional care a dynamic program designed to prevent chronic illness, to minimize its disabling effects and to restore its victims to a socially useful and economically productive place in the community.
2. To clarify the problems arising from chronic illness among all age groups, with full realization of its social as well as its medical aspects.
3. To coordinate separate programs for specific diseases with a general program designed to meet more effectively needs which are common to all the chronically ill regardless of the cause or causes of their illness.
4. To clarify the interrelationship of professional groups and agencies now working in the field.
5. To stimulate in every state and locality a well rounded program for the prevention and control of chronic diseases and for the care and rehabilitation of the chronically ill.

The Board of Trustees of the American Medical Association, meeting in Chicago recently, made available for the permanent Commission on Chronic Illness the sum of $25,000 and has also provided office space in the headquarters of the American Medical Association for the permanent commission, which represents the voluntary health agencies, government agencies and the public. The activities proposed for the permanent commission include:

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[2] Davison, R., and Troy, E. P.: Experiences in Program for Control of Pulmonary Tuberculosis in Chicago, Dis. of Chest **10**: 54-59 (Jan.-Feb.) 1944.

[3] Hewell, B. A., and Nimitz, H. J.: Woodward High School Survey, Dis. of Chest **9**: 348-362 (July-Aug.) 1943.

[1] Members of the Interim Commission include Dr. James R Miller, Hartford, Conn., chairman; Dr. Thomas A. McGoldrick, Brooklyn, representing the American Medical Association; Dr. Albert Snoke, New Haven, Conn., and J. Douglas Colman, executive director, Maryland Hospital Service, Baltimore, representing the American Hospital Association; Dr. Dean W. Roberts, chief, Bureau of Medical Service, Maryland State Health Department, Baltimore, and Dr. Edward S. Rogers, of the School of Public Health, University of California, Berkeley, representing the American Public Health Association; Dr. Ellen C. Potter, Deputy Commissioner for Welfare, State Department of Institutions and Welfare, Trenton, N. J., and Judge Thomas S. J. Waxter, Domestic Relations Court, Philadelphia, representing the American Public Welfare Association.

1. To assemble existing data in order to evaluate and make use of all that is now available and to determine areas requiring further study.
2. To serve as a clearing house for information on laws, programs, experiments and new developments; to keep all interested groups informed through a newsletter published regularly, and to publish special reports from time to time.
3. To stimulate the development of new methods and technics in the organization and administration of services for the chronically ill.
4. To develop suggested patterns for integrated community programs.
5. To establish criteria for the appraisal of state and local chronic disease programs and facilities.
6. To give consultation to private and public state, regional and local agencies interested in planning for the chronically ill.
7. To suggest priorities for the determination of immediate as against long range needs for the guidance of state and local communities.
8. To explore methods of implementing the recommendations made by the commission.
9. To prepare a report to the American people outlining a comprehensive plan for the prevention and control of chronic disease and for the care and rehabilitation of the chronically ill

# Current Comment

## THE NEED FOR MEDICAL OFFICERS

The armed forces must have medical officers. A decision will be made as to whether physicians trained under the A.S.T.P. and V-12 programs who have had little or no military duty are to be drafted or will volunteer for service. An all out campaign has been started by the armed services and by the American Medical Association to obtain the 2,200 physicians needed for replacements during the remainder of this year. An equal number of A.S.T.P. and V-12 graduates will complete two years of active duty and be discharged during the same period. On page 651 of this issue of The Journal appears a statement by Secretary Forrestal. The medical officer requirements of the medical departments of the Army and Navy have been carefully scrutinized by the Armed Forces Medical Advisory Committee and are accepted by that committee as valid. Continuing study will be made to assure the minimum medical officer strength consistent with adequate services to the military forces. The American Medical Association through its Council on National Emergency Medical Service has sent a letter enclosing the names and addresses of all physicians under the age of 26 to each state medical association, urging that steps be taken immediately to appeal personally to every doctor who has not fulfilled his moral obligation to serve. The 8,000 physicians who were deferred from active military duty during World War II and trained in whole or in part at the expense of the government have a strong moral obligation to give one to two years to the government, replacing those who have already served patriotically for two years. The American medical profession voluntarily provided over 50,000 physicians to the Army and Navy during World War II. It cannot fail now to supply the demand for medical service created by the unsettled world condition. Soon the ultimate choice will be made: service on a voluntary basis or by compulsion.

## RESOLUTION ON ANIMAL EXPERIMENTATION OF AMERICAN ASSOCIATION FOR ADVANCEMENT OF SCIENCE

The American Association for the Advancement of Science at its September meeting in Washington, D. C., reemphasized its conviction that animal experimentation is essential for progress in biologic and medical sciences. Animal experimentation is considered particularly important in studies for the control of disease affecting children and for the perfection of procedures and treatments to which the nation owes a considerable part of its health and life. Animal experimentation has conferred inestimable benefits on mankind as well as on animals themselves. In view of these facts, the resolution passed by the Executive Committee of the American Association for the Advancement of Science recommends that a supply of animals for research and teaching purposes for qualified institutions be assured by legislation where necessary and not left to the option of local pound officials and private groups. A fully informed public, acquainted with the true facts of animal experimentation and the real benefits which are derived by mankind and animals generally from such work, will not support legislation which will interfere with the progress of medicine and related sciences.

## OLD AGE PENSIONS

Recently the Federal Security Agency published a release from its Chicago office to the effect that 2,300,000 persons throughout the nation are now receiving monthly payments under the Federal Social Security Program at an average monthly rate of almost $46,000,000. A simple mathematical calculation indicates that this makes an average of a little less than $20 per person. A careful study based on figures published in the *Social Security Bulletin* of November 1948 indicates that the primary benefit payable to the insured person was, in September 1948, $25.20. If the lower amounts payable to wife, child, widow or parents are calculated, the average amounts to $19.70. Since the purpose of such pensions is to care for the indispensable needs of those concerned, one wonders how they make out with either $19.70 or $25.20 to purchase food, fuel, clothing, shelter and medical and dental care.

# ORGANIZATION SECTION

## Official Notes

### A SIGNER RECANTS

*To the Editor:*—I am desirous of stating the fact that I signed a petition without carefully reading it and without finding out exactly how it was to be presented.

Generally, I am in accord with the policies of the American Medical Association. When I signed the foregoing mentioned petition I had no idea that the circulator of this petition would present it as a minority protest against the policies of the American Medical Association.

E. G. Wakefield, M.D.
Rochester, Minn.

### CRITICAL NEED FOR PHYSICIANS IN ARMED FORCES

The following statement, slightly condensed, was made by Secretary Forrestal at a press conference on February 25.

The armed forces are faced with a shortage of physicians and dentists which at this point is critical. Unless sufficient physicians and dentists come forward now and volunteer for service, our entire national defense program may be gravely handicapped. By July of this year we will have lost almost one-third of the physicians and dentists who are now in the armed forces. An overwhelming majority of these are former V-12 and A.S.T.P. students whose tours of duty have been completed. This new loss means that the armed forces will not have enough professional men to give necessary medical services to the almost 1,700,000 men and women who are serving their country. We are pledged to give that service, but our government will most certainly fail to do so unless we obtain sufficient professional man power. Without an adequate number of qualified medical personnel we would be helpless in the event of any unusual crisis.

There are 15,000 young physicians and dentists in America today who were deferred from the draft and excused from combat in order to complete their professional education. Of this group, 8,000 received all or part of their professional training at government expense—the remaining 7,000 paid for their own education, but were excused from the draft and combat service.

By the end of July 1949, we will be short about 1,600 physicians and about 1,160 dentists. By next December this shortage will grow to 2,200 physicians and 1,400 dentists.

We will have no one to take the place of these men other than those who are obtained through normal procurement. This method is still not sufficient to meet our needs. Last month we commissioned only thirty physicians and twenty dentists through our regular procurement channels.

We have several alternatives before us:

1. We can ask for a draft of physicians and dentists in the amount needed to provide these adequate services. We are reluctant to request this step.

2. We can ask the physicians and dentists who already have served in World War II, and who have reserve commissions, to come back into service.

3. We can issue an order which will hold some of the men now on active duty and whose service time is actually up. Neither of the latter two steps is desirable, or even fair.

4. We can ask for volunteers from the 15,000 men whom we educated as physicians and dentists and who have not served, and those who were deferred to complete their education and did not serve. I believe these 15,000 men who saw no service overseas and who were not exposed to the rigors of war will themselves recognize our right to appeal to them to make a contribution in this emergency. From the ranks of these men we should obtain the replacements for those who have served and who are now entitled to return to civilian life if they desire. In a democracy, this procedure is fair, equitable and just, and we propose to make our appeal to these former A.S.T.P. and V-12 students before taking more drastic steps.

Some of the steps which we are now taking to urge these men to discharge their duty to their country and to aid in this emergency are as follows:

1. Within the next few days, I shall write a personal letter to many of the 8,000 men who have been trained by the armed forces at the expense of the government to be physicians and dentists and who have thus far given little or no service in return. I shall invite them to accept commissions in the armed services.

2. I am appealing to the 7,000 men who were deferred and who completed their education at their own expense to volunteer and accept commissions. We are asking local professional leaders to get in touch with these men.

3. I have asked my Deputy for Medical and Allied Professional Matters, Mr. Charles P. Cooper, through the Armed Forces Medical Advisory Committee, to conduct an active campaign for medical and dental personnel. I have requested him to make simultaneously an intensive study of the utilization of this medical man power and of the workload in the armed forces in order to make certain that none of it is wasted and that, so far as possible, each of these volunteers serves in an assignment commensurate with his professional skill and ability.

4. This program is a joint undertaking of the armed forces, the American Medical Association, the American Dental Association and other allied professional groups from their national offices down to the local communities. We shall furnish these groups with the names of many of the doctors in their communities who received this government training. We shall ask them to seek out others. I shall ask them to interview these men personally and to urge on them the critical needs which face the armed forces.

5. These local professional groups will be asked to report to me as soon as possible the results of their personal contact with these young doctors.

6. I have asked the heads of the veterans' groups to assist in this campaign of enrolling physicians and dentists in the armed forces.

7. I shall ask the deans of the medical schools and the heads of hospitals to cooperate.

8. I am asking public support and understanding in this campaign to fill our needs.

Arrangements will be made by the services to allow those who volunteer at this time to finish their current training periods before being called to active duty. Calls to active duty will be staggered so as to cause minimum disruption to civilian hospital training programs.

It is our sincere hope that this campaign will succeed. If it does not, then we shall be forced to resort to more drastic means, such as holding men in the service beyond their normal time or asking Congress to pass a draft law.

We do not wish to take either of these steps, but failure in this campaign will force us to take both of them.

We have an obligation to the millions of persons concerned. These include the men and women in the armed forces themselves and the fathers and mothers of these men and women, who depend on the pledge of this government to take care of the medical needs of those who serve their nation throughout the world. They also include the citizens of the nation, who in this democracy have the right to expect that those who serve them in the armed forces will be provided with adequate medical care.

The physicians and dentists of America have always responded to such needs as now face us. We are asking them to respond again. I am sure that, if they understand the present needs, they will respond.

# Washington Letter

## WASHINGTON LETTER

*(From a Special Correspondent)*

Feb. 21, 1949.

### Medical Research Legislation Multiplying

The first six weeks of the first session, Eighty-First Congress, have witnessed an unprecedented volume of bills providing for increased federal participation in medical research. During this period, eleven bills on multiple sclerosis were filed, five on arthritis and rheumatic diseases, and one each for cerebral palsy and epilepsy. All authorize establishment of special institutes in the U. S. Public Health Service and, in their drafting, follow essentially the same formula as the national cancer and heart acts.

In addition, seven bills — most of them similar — have been introduced for creation of a National Science Foundation. Such a measure was passed by the Senate last year but the House took no action, and therefore the science foundation campaign has had to be started over from the beginning this year. Most of the House bills introduced in the present session vary from the Senate measure by providing for mandatory establishment of special federal commissions for cancer, heart disease and poliomyelitis. The Senate bill (S. 247) states simply that there shall be established "such special commissions as the Foundation may from time to time deem necessary."

### Plans for Federal Department of Welfare Advanced

Establishment of a Federal Department of Welfare moved another step toward realization on February 9 when Federal Security Administrator Oscar R. Ewing strongly urged enactment of such legislation. Giving only twenty-four hours' notice that it would conduct a public hearing on H. R. 782, the bill for conversion of the Federal Security Agency to departmental status, the House Expenditures Committee heard Ewing as the only witness on February 9. Capitol Hill observers anticipated prompt reporting of the bill to the House floor by the committee and early passage of the measure with few or no major amendments. Slower action by the Senate, however, was held probable.

In his testimony, Ewing acknowledged that professional groups have expressed opposition to combining federal health, education and social security operations in a single department, headed by a member of the President's Cabinet. They point out, he asserted, that the states generally have separate departments for these three fields, and that therefore state federal coordination would be improved if the Washington structure followed a similar pattern.

"The answer to this, I think," Ewing testified, "is that at the state and local level the activities of health, education and security are carried on by operating units whereas in the federal government these activities mainly involve research, promotion and the administration of grants-in-aid."

H. R. 782, a bill giving the Federal Security Agency cabinet status as the Department of Welfare, was ordered favorably reported to the House on February 15 by the Committee on Expenditures in the Executive Departments. Committee action on the bill, sponsored by its chairman, Representative William L. Dawson (Democrat, Illinois), followed presentation of testimony by Federal Security Administrator Oscar R. Ewing, Representatives Oren Harris (Democrat, Arkansas) and A. L. Miller (Republican, Nebraska) and representatives of the medical and dental professions.

Dr. John W. Green of Vallejo, Calif., a member of the American Medical Association House of Delegates, urged establment of a separate Department of Health rather than consolidation of health, education and social security functions in a single executive agency. At one point in the course of spirited interrogation to which he was subjected by Representatives Clare Hoffman, Chet Holifield and other committee members, Dr. Green asserted:

"If Dr. Ray Lyman Wilbur, who was Secretary of another Department some years ago, had been Secretary of a Department of Health, we would find ourselves today in a far better situation."

John Hunton, executive secretary of the California Medical Association, joined Dr. Green in replying to the congressmen's questions, which ranged in character from a definition of adequate medical care to whether blame should be attached to the medical profession if Congress enacts socialized medicine.

Opposition to H. R. 782 also was registered by Dr. Robert E. S. Young, president of the Association of American Physicians and Surgeons. "Its passage," said the Columbus (Ohio) surgeon, "would place control of the Nation's health activities in the inexperienced and unskilled hands of social or welfare workers."

Testimony by Dr. Frederick J. Quigley, past president of the New Jersey State Medical Society, was in similar vein. He stated that he has no doubt that Mr. Ewing has been propagandizing for socialized medicine.

Others heard against the bill were Dr. Henry A. Swanson of Washington, in behalf of American Dental Association, and Mrs. Marjorie Shearon. Clarence R. Miles, manager of the Department of Governmental Affairs, U. S. Chamber of Commerce, recommended that action be deferred until the Hoover Commission report on federal medical and public health functions is submitted to Congress. Witnesses in support of H. R. 782 were Mr. Ewing and John J. Corson, circulation director of *The Washington Post.*

While the committee's decision to report the bill favorably was by voice vote, and hence there was no record of the "ayes" and "nays," it was indicated that the division was strictly along party lines. A concession achieved by the Republican minority was an antipropaganda amendment of Section 1 of H. R. 782, specifying that information disseminated by the Secretary of Welfare on health matters shall be "useful and proper."

### A. M. A. Plan Gets Mixed Reaction in Washington Press

Editorial reaction to the American Medical Association's twelve point national health program was generally favorable in the Washington press. The *Evening Star* praised the Association's positive step but observed dourly that the most significant thing about the plan was the fact it was finally introduced. The *Times-Herald*, which always has been fiercely critical of compulsory sickness insurance, urged the public to give careful study to the American Medical Association proposal and the Murray-Wagner-Dingell bill, as well as the legislation which Senator Taft has said that he plans to introduce. The *Post* characterized the Association's announcement as "welcome" but one that resulted from pressure. This morning newspaper, in the past, has manifested an inclination toward federal medical insurance, but a change in position is indicated by the following excerpt from its editorial:

> Its [the American Medical Association's] emphasis is heavily on voluntary and cooperative efforts of various kinds. And this is good, both in itself and as evidence of advancing thought in the councils of the AMA. The presumption is always, or should be, that compulsion is to be avoided where possible. Not as a plague, because it is a necessary aspect of government, but as a last resort to be used only if voluntary methods have proved themselves grossly unable to perform a needed service.

### Medical Care Reviewed in Annual Report of the Veterans Administration

According to the annual report of the Veterans Administration for the year ended June 30, 1948, the most significant changes noted by the department of medicine and surgery were the increasing professional stature of medical activities, improvements in quality of care received by veterans, rising proportions of veterans discharged from hospitals on attaining maximum benefits and the declining death rate.

An all-time peak of 108,000 patients was reached during the fiscal year. The average patient load was 105,900, compared with 98,200 in the preceding year. Hospital admissions totaled 549,300 and discharges 548,000. Psychotic patients comprised almost one half the total patient load. Of the 46,500 psychotic veterans under hospitalization on May 18, 1948, 57 per cent had been hospitalized more than three years and 28 per cent more than ten years. Two thirds of them were in military service prior to World War II.

# *Medical Legislation*

## STATE LEGISLATION

### Arizona

**Bills Introduced.**—H. 153, to amend the workmen's compensation act, proposes to **accord to licensed chiropractors** equal rights and privileges with licensed practitioners of medicine and surgery by the industrial commission or any other public agency, institution, officer or employee so long as the chiropractor does not perform any act or render any service otherwise prohibited by law.

### Arkansas

**Bills Introduced.**—H. 52 proposes that any inhabitant of the state over the age of 21 years and of sound mind may, by an instrument in writing, dispose or make arrangements for the **disposition to be made of his body** or any part or organ thereof after death, provided the disposition of said body or parts thereof is made for the purpose of advancement of medical science, or for the replacement of diseased or worn out parts of other humans, or for the rehabilitation of human parts or other organs. H. 57 proposes to require **applicants for a marriage license** to present a certificate from a licensed physician of the state of Arkansas showing that a blood test of the applicant has been made and that the result of said blood test shows the applicant to be free from syphilis in the active stage. H. 236 proposes to **require the medical school** of the University of Arkansas to admit students from the various senatorial districts of the state on a basis of population of such districts. Students entering the school would be required to sign a note for $2,000 for each year of attendance, which amount would be canceled, after graduation, at the rate of $2,000 for each year the student practices in his home county. H. 240, to amend the law relating to the sale of **barbituric acid** or derivatives, proposes that sales of such drug shall be unlawful by retail pharmacies except on the written and signed prescription of a person licensed in the state to practice osteopathy as well as those entitled to practice medicine and surgery, dentistry or veterinary medicine.

**Bill Enacted.**—H. Con. Res. 4 was approved Jan. 28, 1949. It memorializes the Congress of the United States not to enact any proposed legislation the effect of which will be to bring the practice of medicine in this country under the federal direction and control, either through a form of compulsory insurance or any system of medical care designed **for national bureaucratic control.**

### California

**Bills Introduced.**—A. 1256, relating to **membership on the state board of public health**, proposes that one member thereof shall be a doctor of osteopathy, one a licensed and practicing chiropractor and four shall be licensed physicians and surgeons. A. 1697 proposes an initiative act relative to the state board of chiropractic examiners which would grant chiropractors the **right to obtain an obstetrical permit** on presentation of evidence of adequate preparation for such obstetrical practice. A. 1756, to amend the civil code, proposes to grant to private hospitals and physicians who furnish hospital or medical service to an injured person a lien for the reasonable value of such **hospital or medical service** on any cause of action for damages which the injured person may have against any other person arising out of the injury which necessitated the hospital or medical service. A. 1984 and S. 962 propose to **define a drug** as including any substance of either animal, vegetable or mineral composition or origin whose ordinary use is for the diagnosis, prevention, treatment or care of disease in man or animals. A. 2085 proposes regulations for the organization of health service groups to provide prepaid medical care and hospital service on a voluntary basis to the people of the state of California. S. 795, to amend the **business and professions code**, proposes to make it a misdemeanor for a licentiate to accept any rebate, refund, commission, preference or unearned discount in the form of money or otherwise as compensation or inducement for referring patients, clients or customers to any person, firm, association or corporation. S. 797, to amend the business and professions code, proposes, among other things, that any physician who **while practicing becomes intoxicated** to such an extent as to impair his ability to conduct the practice authorized by his certificate with safety to the public and his patients shall be guilty of a misdemeanor. S. 817, to amend the business and professions code, proposes among other things that nothing shall prohibit **the board of medical examiners** from disapproving any foreign medical school or from denying the application if, in the opinion of the board, the instruction received by the applicant or the courses were not equivalent to that required in the California provisions relating to the licensing of physicians and surgeons. S. 946, to amend the business and professions code section which now provides that corporations and other artificial legal entities have **no professional rights**, privileges or powers, proposes to add thereto the following proviso: that the Board of Medical Examiners may in its sole discretion, after such examination, investigation and documentary evidence as it may require, and under rules and regulations adopted by it, grant approval of the employment of physicians and surgeons on a salary basis by licensed charitable and eleemosynary institutions, foundations or clinics or by approved medical schools operating clinics therewith, if no charge for professional services rendered patients is made by any such institution, foundation, clinic or school. S. 947. to amend the business and professions code, proposes that the words **"diagnose" or "diagnosis"** shall include any undertaking by any method, device or procedure whatsoever and whether gratuitous or not, to ascertain or establish any fact concerning the physical, mental or nervous condition of a person. The proposal then suggests that without limiting the generality of this definition, "diagnose" and "diagnosis" shall specifically include the taking of a person's blood pressure and the use of mechanical devices or machines for the purpose of representing to any person any conclusion with respect to such person's physical, mental or nervous condition. S. 949, to amend the business and professions code relating to the **definition of the practice of medicine** and surgery, proposes to add as a part of that definition the diagnosing, treating, operating or prescribing for any physical, mental or nervous disease. S. 954, to amend the business and professions code, proposes, among other things, that before a physician's and surgeon's certificate may be issued to an applicant the applicant must show by evidence satisfactory to the board that he has received the degree of doctor of medicine from a school approved by the board and that he has completed **a year's intern training in** a hospital approved by the board. S. 966, to amend the business and professions code, proposes to eliminate the granting of a certificate to **practice midwifery.** S. 1035, to amend the education code, proposes that every attending or consulting physician who examines any child under 20 years of age found to be **totally deaf or with impaired hearing** shall report at once to the department of education the name, age, residence and the name of the parent or guardian of the minor.

### Connecticut

**Bills Introduced.**—S. 291 proposes to require any person desiring to engage in the practice of **practical nursing** to obtain a license from the local health officer of the town, city or borough in which said occupation is to be carried on. The practice of practical nursing is defined to mean practical care of the sick and is subject to direction by medical doctors and physicians, supervisors of hospitals and institutions and registered nurses. S. 331, to amend the medical practice act, proposes to eliminate from the exemption provision of the medical practice act persons practicing **the massage method and Swedish movement method.** The "Statement of Purpose" attached to the bill says: "Persons who use massage or similar methods for treatment are licensed as practitioners of the healing arts, but persons who may use such methods under the supervision of practitioners of the healing arts are licensed as physiotherapists. Masseurs are not licensed at all and cannot do therapeutic massage." S. 359, to amend the law relating to **naturopathy,** proposes to permit naturopaths to use cell salts as found in the human body, vegetable oils and nonpoisonous and nontoxic herbs in their natural state. S. 361, to amend the law relating to **premarital examinations,** proposes to permit naturopathic physicians to issue premarital blood test certificates the same as medical and osteopathic physicians. S. 363 proposes to provide representation of all schools of the healing arts in the **public health council** and to eliminate discrimination against minority schools of the healing arts. S. 453 proposes to require medical examinations by physicians licensed to practice medicine in the state, of **persons employed in the manufacture, preparation or serving of food.** The examination shall certify freedom from any contagious disease. S. 520, to amend the law relating to **annual physical examinations** of school children, proposes that such annual examination shall include a blood count and a urinalysis. S. 570 proposes that no measure relative to **birth control legislation** shall be introduced in the 1951, 1953 or 1955 sessions of the state legislature. S. 628, to amend the workmen's compensation act, proposes to permit an injured employee a **free choice of physicians.** S. 648 proposes the establishment of a **state toxicologic laboratory** for the analysis of poisons, body fluids and tissues as an aid in the detection and investigation of crime. S. 649, to amend the law relating to the **vaccination of school children,** proposes to make such vaccination mandatory rather than permissive.

### Georgia

**Bills Introduced.**—H. 155 proposes that any **applicant for a marriage license** must present a certificate signed by a qualified physician licensed to practice medicine and surgery in any state or United States territory stating that the applicant has been given an examination and that in the opinion of the examining physician the applicant is not infected with syphilis in a communicable stage. H. 589, to amend the medical practice act relating to applicants for license, proposes that the state board of medical examiners before issuing a license to any applicant who has passed the examination shall obtain from each such applicant a certificate from a hospital approved by the state board of medical examiners showing that the applicant has **completed a rotating internship** in said hospital of at least one year and that during said internship the applicant had experience in surgery, medicine, obstetrics, gynecology and pediatrics. The board of medical examiners would be authorized and empowered to approve and designate hospitals in Georgia and outside of Georgia as being satisfactory hospitals for such internship.

**Bill Enacted.**—H. 9 has become Governor's Act No. 68 of the Acts of 1949. It directs the state department of public welfare to formulate and put into effect plans and programs and facilities for the care and treatment of children residing in Georgia **suffering from cerebral palsy** and all other handicapping conditions.

### Illinois

**Bill Introduced.**—H. 110 proposes to authorize the department of registration and education to grant licenses **to practice naturopathy** under certain conditions. Naturopathy is defined by the proposal as the art and science of naturopathic medicine, which includes the diagnosis, prevention and treatment of human injuries, ailments and diseases by means of any one or more of the psychologic, physical or mechanical, chemical or material forces, or agencies of nature as taught by the accredited schools, colleges, universities or departments of universities or other institutions teaching the art and science of naturopathy.

### Indiana

**Bills Introduced.**—H. 244 proposes the creation of a **board of chiropractic examiners** and defines chiropractic as the science of locating and removing interference with nerve transmission in the spinal column. H. 350 proposes that all **children conceived by artificial means** during the period of time that the mother of such child or children was legally married, and which conception took place after the husband of such mother consented to artificial insemination, shall be deemed to be legitimate and have full rights of inheritance from both the mother and the husband of the mother who was such husband during the time that such child or children were conceived. The necessary written consent shall be witnessed by a physician holding an unlimited license to practice medicine and he shall be the same physician as the one who consummated the artificial insemination. S. 103 proposes to require every physician or oculist to report to the state board of health every person diagnosed by him as being blind or having **visual impairment** of a degree sufficient to interfere normally with such person's ability to earn a livelihood.

## Iowa

**Bills Introduced.**—H. 301 proposes the repeal of the **basic science law.** H. 380 would require the various examining boards in the state to include in their examination the **basic science subjects.** This bill is conditioned on repeal of the basic science law through the enactment of H. 301.

## Nevada

**Bills Introduced.**—A. 79, to amend the **chiropractic practice act,** proposes to eliminate from the existing law the following provision: "provided, nothing herein contained shall be construed to prohibit the use by any licensed chiropractor of all necessary electrical, mechanical, and hygienic and sanitary measures incident to the care of the body." A. 80, to amend **the chiropractic act,** proposes to define chiropractic as the adjustment of the articulations of the human body by hands or hand, and provides for the use of all necessary electrical, mechanical, hygienic and sanitary measures incident to the care of the body. A. 87 proposes that **applicants for a marriage license** shall present a certificate from a duly licensed physician, which certificate shall state that in the opinion of such physician the applicant is not infected with syphilis in a *communicable stage. S. 47 proposes certain amendments to the existing* law relating to **privileged communications.** Among other things, it is proposed that bringing of an action to recover for the death of a patient by the executor of his will or by the administrator of his estate or by the surviving spouse of the deceased or by the children personally shall constitute a consent to the testimony of any physician who attended such deceased.

## New Hampshire

**Bill Introduced.**—H. 215 proposes to require any physician or hospital superintendent to report immediately to the local board of health any person under his care or observation who is affected with a **communicable disease** or any other condition requiring reporting by the physician.

## New Jersey

**Bills Introduced.**—A. 212 proposes to require the annual **registration of osteopaths.** S. 94 proposes **to amend the medical practice act** by providing that any person shall also be regarded as practicing medicine and surgery, within the meaning of this chapter, who makes any examination, test or analysis of any fluid, excretion, secretion or tissue of the human body or of any organism contained therein, where such examination, test or analysis is made for use or is used in connection with the diagnosis or treatment of any human disease, pain, injury, deformity or physical condition or for the confirmation of such diagnosis or treatment.

## New Mexico

**Bills Introduced.**—H. 54 proposes the enactment of a **new food, drug and cosmetic act,** in which is the provision that any drug sold at retail and containing any quantity of aminopyrine, barbituric acid, cinchophen, dinitrophenol, sulfanilamide, or their derivatives, or any other drug found by the board to be dangerous shall be labeled in a certain way unless it is sold on the prescription of a member of medical, dental or veterinary profession who is licensed by law to administer such drug. H. 96 proposes to require **applicants for a marriage license** to present a certificate from a physician and surgeon duly licensed to practice medicine and surgery in New Mexico, which certificate shall state that in the opinion of such physician or surgeon the person is not infected with syphilis in a communicable stage. S. J. M. 7 would memorialize the Congress of the United States to refrain from imposing on the citizens of the nation **any form of compulsory insurance** or any system of medical care designed for national bureaucratic control. S. 65 proposes to authorize the **board of medical examiners** to grant licenses to practice medicine in the state without examination to graduates of medical colleges of either the Republic of Mexico or the Dominion of Canada if the school is accredited in such republic or dominion, if the applicant is a citizen or has applied for citizenship in the United States, if the applicant has successfully passed the required examination and, if the applicant has served an internship in a hospital within the state of New Mexico for a period of not less than two years under a reputable licensed medical practitioner.

## Ohio

**Bills Introduced.**—H. 293, to amend the medical practice act, proposes to exempt therefrom the **treatment of human ills through prayer alone** by a practitioner of the Christian Science church in accordance with the tenets and creed of such church. S. 126, to amend the provisions of the medical practice act defining unprofessional or **dishonest conduct,** proposes to include therein failure to indicate the degree held on which his certificate to practice medicine or surgery, osteopathic medicine and surgery or any of the limited branches of medicine or surgery is based when using the title "doctor" or any abbreviation thereof, on signs, cards, stationery, announcements or advertisements.

## Oklahoma

**Bill Introduced.**—S. 147, **to amend the workmen's compensation act,** proposes to authorize an injured employee to select a physician or surgeon of his own choosing.

## Rhode Island

**Bill Introduced.**—H. 678 proposes the creation of a Rhode Island **Commission for the Study of Alcoholism** to undertake a comprehensive objective study of the problems of alcoholism in the state.

## Wisconsin

**Bills Introduced.**—A. 172, to amend the **basic science act,** proposes that if an applicant fails in two or more subjects he must apply anew and stand examination in all subjects. A. 193 proposes to authorize the board of health to cooperate with the federal government and other state and community agencies in the development of programs directed toward the **prevention of rheumatic heart disease** and for the convalescent care of children with rheumatic fever, including the case finding, diagnosis and care of the acute and the convalescent stages of rheumatic fever, the prevention of recurrences and provision for such occupational therapy and subsequent care and supervision as may be deemed necessary. A. 210 proposes to require all persons licensed under chapter 147 of the Wisconsin statutes to report immediately every person diagnosed as afflicted with **epilepsy or similar disorder** characterized by lapses of consciousness. The existing statute only requires such reports by physicians. A. 213, to amend the workmen's compensation act, proposes to grant injured employees **free choice of a specialist** to care for his injuries.

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# Coming Medical Meetings

Alabama, Medical Association of the State of, Montgomery, April 19-21. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary.

Alaska Territorial Medical Association, Juneau, March 3-5. Dr. William P. Blanton, Box 2569, Juneau, Secretary.

American Academy of General Practice, Cincinnati, Netherlands Plaza Hotel, March 7-9. Mr. Mac F. Cahal, 231 W. 47th St., Kansas City, Mo., Executive Secretary.

American Association for Thoracic Surgery, New Orleans, March 29-31. Dr. Brian Blades, George Washington University Hospital, Washington, D. C., Secretary.

American Association of Anatomists, Philadelphia, April 13-15. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

American Association of Industrial Physicians and Surgeons, Detroit, Book-Cadillac and Statler Hotels, April 5-9. Dr. Edward C. Holmblad, 28 E. Jackson Blvd., Chicago 4, Managing Director.

American Association of Pathologists and Bacteriologists, Boston, April 15-16. Dr. Howard T. Karsner, 2085 Adelbert Road, Cleveland, Secretary.

American Association on Mental Deficiency, New Orleans, Hotel Roosevelt, April 27-30. Dr. Neil A. Dayton, Box 51, Mansfield Depot, Conn., Secretary.

American Broncho-Esophagological Association, Chicago, Drake Hotel, April 18-19. Dr. Edwin N. Broyles, 1100 N. Charles St., Baltimore 1, Secretary.

American College of Allergists, Chicago, April 14-17. Dr. Fred W. Wittich, 423 LaSalle Medical Bldg., Minneapolis 2, Secretary.

American College of Physicians, New York, March 28-April 1. Dr. George Morris Piersol, 4200 Pine St., Philadelphia 4, Secretary General.

American Industrial Hygiene Association, Detroit, Book-Cadillac and Statler Hotels, April 5-7. Dr. Henry F. Smyth Jr., 4400 Fifth Ave., Pittsburgh 13, Executive Secretary.

American Orthopsychiatric Association, Chicago, Stevens Hotel, April 4-6. Nina Ridenour, Ph.D., 25 W. 54th St., New York 19, Secretary.

American Otorhinologic Society for the Advancement of Plastic and Reconstructive Surgery, New York, Hotel Waldorf-Astoria, March 4. Dr. Norman N. Smith, 291 Whitney Ave., New Haven 11, Conn., Secretary.

American Physiological Society, Detroit, April 19-22. Dr. Milton O. Lee, 2101 Constitution Ave., Washington 25, D. C., Executive Secretary.

American Society for Experimental Pathology, Detroit, April 18-22. Dr. Frieda S. Robscheit-Robbins, 260 Crittenden Blvd., Rochester, N. Y., Secretary.

American Society for Pharmacology and Experimental Therapeutics, Detroit, April 18-22. Dr. Harvey B. Haag, Medical College of Virginia, Richmond 19, Secretary.

American Society for Research in Psychomatic Problems, Atlantic City, Chalfonte-Haddon Hall, April 30-May 1. Dr. Sydney G. Margolis, 714 Madison Ave., New York 24, Executive Secretary.

American Society of Biological Chemists, Detroit, April 17-22. Dr. Otto A. Bessey, 1853 W. Polk St., Chicago 12, Secretary.

American Surgical Association, St. Louis, April 20-22. Dr. Nathan Womack, University of Iowa, Iowa City, Secretary.

Arkansas Medical Society, Little Rock, April 14-16. Dr. William R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Chicago Medical Society Annual Clinical Conference, Chicago, Palmer House, March 1-4. Dr. H. Kenneth Scatliff, 30 N. Michigan Ave., Chicago 2, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, March 14-17. Miss Thelma Webb, 1133 Medical Arts Bldg., Dallas, Executive Secretary.

Iowa State Medical Society, Des Moines, April 18-21. Dr. Allan B. Phillips, 406 Sixth Ave., Des Moines 9, Secretary.

Maryland, Medical and Chirurgical Faculty of the State of, Baltimore, April 26-27. Dr. George H. Yeager, 1211 Cathedral St., Baltimore 1, Secretary.

Michigan Postgraduate Clinical Institute, Detroit, Book-Cadillac Hotel, March 23-25. Dr. L. Fernald Foster, 2020 Olds Tower, Lansing 8, Mich., Secretary.

Missouri State Medical Association, Kansas City, March 27-30. Mr. T. R. O'Brien, 634 N. Grand Blvd., St. Louis 3, Secretary.

New Jersey, Medical Society of, Atlantic City, Hotel Ambassador, April 25-28. Dr. Earl L. Wood, 315 W. State St., Trenton 8, Secretary.

New Orleans Graduate Medical Assembly, New Orleans, Municipal Auditorium, March 7-10. Dr. W. D. Beacham, 1430 Tulane Ave., New Orleans, Secretary.

Ohio State Medical Association, Columbus, April 19-21. Mr. Charles S. Nelson, 19 E. State St., Columbus 15, Executive Secretary.

Public Health Association, Dallas, Texas,
Dr. George A. Denison, 600 S. Twentieth
retary.

Southwest Allergy Forum, El Paso, Texas, Hotel Paso del Norte, April 4-5. Dr. O. E. Egbert, First National Bank Bldg., El Paso, Secretary.

Tennessee State Medical Association, Chattanooga, April 12-14. Dr. W. M. Hardy, 706 Church Street, Nashville 3, Secretary.

# Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as relate to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

## ALABAMA

**Annual Meeting of State Association.**—The Medical Association of the State of Alabama will hold its annual session in Montgomery April 19-21 at the Whitley Hotel, under the presidency of Dr. Francis M. Thigpen, Montgomery. Out-of-state speakers include:

Douglas Buchanan, Chicago, Familial Lipoid Degenerations.
Max Thorek, Chicago, The Jerome Cochran Lecture, Cholecystectomy: Its Technical Variations.
Roy H. Turner, New Orleans, Difficulties in Diagnosis Resulting from Specific Therapy.
Lawrence Reynolds, Detroit, Bronchogenic Carcinoma.
William T. Kennedy, New York, Damages in the Second Stage of Labor.
George F. Lull, Secretary and General Manager, American Medical Association, Chicago, What Does Your National Association Do for the Public?

At the Wednesday morning session recognition will be made of the Fifty-Year Club when twenty-two physicians become members.

## CONNECTICUT

**Yale Forms a Department of Microbiology.**—The Yale University Graduate School and School of Medicine are combining personnel and facilities in the formation of a new department and course of study in microbiology leading to a Ph.D. degree. This new program will include seventeen faculty members from four graduate school departments and the medical school's section of preventive medicine. The group will bring together courses now offered by the departments of bacteriology and immunology, plant science, physiologic chemistry and zoology, all under the graduate school and the section of preventive medicine. During the first year emphasis is placed on the common elements underlying the study of all forms of micro-organisms. Students will take courses in biochemistry and microbiology, including laboratory work designed to provide acquaintance with the more important types of micro-organisms. Throughout the second and subsequent years, the students devote an increasing share of their time to their major fields of interest. Familiarity with the various specialties in the general field is continued by participation in courses and seminars and through lectures and demonstrations of research by advanced students and staff members.

## FLORIDA

**New Medical Building.**—Ground was broken February 9 at the Florida Agricultural and Mechanical College, Tallahassee, for a $2,000,000 hospital, health center and nursing school building, which is reported to be the most expensive building ever constructed on a Negro college campus in the country. The event was attended by 1,500 students, educators, officials and representatives of the medical profession and dentistry. The state has authorized about $850,000, the federal government has granted about $650,000, the city of Tallahassee $250,000, the General Education Board $50,000 and the remainder was secured by private subscriptions throughout the state. The new facility will consist of a five story brick building with three hundred air-conditioned rooms and will contain a hundred bed hospital. The nursing school will admit 100 students for a four year graduate course. There will be inservice clinical training for about 50 dentists and 150 physicians. The state legislature has agreed to authorize an expenditure of $350,000 a year to meet the administrative and operating expenses of the new health center. Among those taking part in the ceremonies were Drs. Ulysses G. Dailey, Provident Hospital, Chicago; Eugene H. Dibble Jr., Tuskegee Institute, Tuskegee, Ala.; Daniel T. Rolfe, Meharry Medical College, Nashville, Tenn., and Leonard H. Foote, Florida A. and M. College, Tallahassee.

## GEORGIA

**Personal.**—Dr. J. Elliott Scarborough Jr. of Atlanta has been appointed a member of the National Advisory Cancer Council for three years to assist in formulating plans and policies of the National Cancer Institute at Bethesda, Md., and to review applications for aid in cancer control and research.

**Dr. Sheldon Named Chairman of Pathology Department.**—Dr. Walter H. Sheldon, associate professor of pathology, Emory University, Atlanta, has been appointed professor of pathology and chairman of the department. Dr. Sheldon, a graduate of the Faculty of Medicine and Surgery of the Catania Royal University, Italy, 1935, is a former instructor in pathology, Harvard Medical School, Boston, and research associate in pathology at the Boston Lying-In Hospital.

## INDIANA

**Dr. Meirowsky Joins Medical Faculty.**—Dr. Emil Meirowsky has accepted an appointment to the staff of the Indiana University School of Medicine, Bloomington–Indianapolis, as research assistant in surgery (oncology). The investigations which Dr. Meirowsky has pursued for years in his native Germany and in England are being carried on at the university. He served as professor of dermatology and syphilology at the University of Cologne for thirteen years, going to England in 1938, where he was the public health officer for Surrey County and dermatologist at the Royal Surrey County Hospital. Dr. Meirowsky's investigative work is supported by a grant from the Indiana Elks' Association through the Indiana Cancer Society.

## KENTUCKY

**Dr. Kinsman Appointed Dean.**—Dr. J. Murray Kinsman, professor of medicine and a member of the school faculty for nineteen years, has been appointed dean of the University of Louisville School of Medicine effective July 1, succeeding Dr. John W. Moore (THE JOURNAL February 19, page 534). Dr. Kinsman is president of the Jefferson County Medical Society, and a graduate of McGill University, Montreal, Canada, 1922.

**Public Health Meeting.**—The first meeting of the Kentucky Public Health Association will be held at the Brown Hotel, Louisville, March 23-25. Public health workers in Kentucky may become active members, and any one interested in public health may hold an associate membership. Sections for health officers, nurses, sanitarians, venereal disease investigators and clerks will be conducted. At the same time a school for county health officers will be held. Members of citizens health committees will also attend the meeting.

**Psychiatric Course for Social Workers.**—The psychiatric social work course of the Kent School of Social Work of the University of Louisville has been approved by the American Association of Psychiatric Social Workers. This places the university's school in a select group of seventeen accredited psychiatric social work schools in the country, only two of which are in the South. In September 1947 the program was started by means of a federal grant of $13,309 under the terms of the National Mental Health Act with Associate Professor Sylvia R. Jacobson as its director.

**Postgraduate Course on Diabetes.**—The American Academy of General Practice of Jefferson County will offer a postgraduate course in diabetes mellitus at St. Anthony's Hospital, Louisville, on Thursday from 8 to 10 p. m., April 7 through May 5. Drs. Ben H. Hollis, John D. Allen, Arthur T. Hurst, Carlisle Morse and William H. Bizot, Louisville physicians, will present lectures on subjects relating to recent advancement in the diagnosis and treatment of diabetic patients. The course is open to all physicians in Kentucky and surrounding localities. A registration fee of $10 will be charged. For information, communicate with Dr. John Rulander, 1760 Frankfort Avenue, Louisville.

## MASSACHUSETTS

**State Health Conference.**—The first annual Health Conference sponsored by the Massachusetts Department of Public Health was held in Boston February 19-20 under the chairmanship of Mr. Philip R. Mather, president of the National Health Council. The theme of the meeting was "Means of Improving Health in Massachusetts During the Next Five Years." Among the speakers were Drs. Vlado A. Getting, commissioner, Department of Public Health; John H. Cauley, commissioner, Boston Health Department; Clifton T. Perkins, Boston, commissioner, department of mental health, and Charles F. Wilinsky, Boston, president, American Public Health Association. Discussion of state health problems was carried on twenty conference panels.

## MICHIGAN

**Cancer Day.**—The Genesee County Medical Society will conduct a program on cancer April 13 at the Hurley Hospital Auditorium 9:30 to 5 o'clock. The speakers will be the following:

Arthur P. Stout, New York, Role of the Surgical Pathologist in Respect to the Cancer Problem.
Harold W. Dargeon, New York, Cancer in Children.
Thomas E. Jones, Cleveland, Cancer of the Lower Bowel.
Norman F. Miller, Ann Arbor, Mich., Management of Uterine Cancer.
E. W. Alton Ochsner, New Orleans, Basic Principles in Cancer Management.

## MINNESOTA

**Bergh Memorial Lecture.**—Dr. Andrew C. Ivy, Chicago, delivered the Luthard N. Bergh Memorial Lecture February 16 at the University of Minnesota Medical School, Minneapolis, on "Certain Aspects of the Physiology of the Extra Hepatic Biliary Tract." The lecture, sponsored by the Minnesota Medical Foundation, was made possible by gifts from relatives and friends of the late Dr. Bergh, who was on the staff of Montevideo Hospital and division surgeon for the Chicago, Milwaukee and St. Paul Railway.

## NEW YORK

**Sixth Harvey Lecture.**—Dr. Hans A. Krebs, professor of biochemistry, University of Sheffield in England, will deliver the sixth Harvey Lecture of the current series at the New York Academy of Medicine on March 17, on "Tricarboxylic Acid Cycle."

**The Program for Mental Health.**—A résumé of the state program for mental health has been published by the department of mental hygiene to meet the demand for information regarding the treatment of mental disorders. Among the innovations and improvements described are the expansion of therapeutic facilities, establishment of a much improved food service, organization of a comprehensive training program for institution personnel, extension of child guidance clinics and provision for new construction to replace obsolete buildings and relieve overcrowding.

**Postgraduate Instruction.**—The Medical Society of the State of New York in cooperation with the New York State Department of Health has arranged a lecture for the Clinton County Medical Society in Champlain Valley Hospital Nurses' Home, Plattsburg, April 21, 8 p. m. Dr. William F. Lipp, Buffalo, will speak on "Diseases of the Biliary Tract Associated with Jaundice." The Utica Academy of Medicine will hear Dr. Joe W. Howland, Rochester, N. Y., speak on "Medical Aspects of the Atomic Bomb" at a meeting in the Hotel Utica in Utica March 17 at 8 p. m.

**Dedicate Psychiatric Clinic.**—A dedicatory program for *Wing R Psychiatric Clinic of Strong Memorial Hospital* and the University of Rochester School of Medicine and Dentistry will be held in the Upper Strong Auditorium of the university March 31. Visiting speakers will be the following:

Paul A. Weiss, Ph.D., Chicago, Biological Basis of Adaptation.
Homer W. Smith, Sc.D., New York, Organism and Environment: Dynamic Opposition.
Howard S. Liddell, Ph.D., New York, Adaptation of the Threshold of Intelligence.
Lawrence S. Kubie, New York, Neurotic Potential and Human Adaptation.
Clyde Kluckhohn, Ph.D., Boston, Adjustment and Adaptation: An Anthropological Approach.

### New York City

**First Brooklyn Cancer Clinic.**—The Brooklyn Cancer Committee has announced that the first free cancer detection and prevention clinic in a Brooklyn volunteer hospital is being established at the Beth-El Hospital. It will be known as the Jeri Finesilver Cancer Detection Clinic and will be devoted entirely to the treatment of those in low income groups.

**Dr. Rusk to Give Biggs Memorial Lecture.**—The Hermann M. Biggs Memorial Lecture, held annually in Hosack Hall at the New York Academy of Medicine under the auspices of the Committee on Public Health Relations, will be delivered April 7 at 8:30 p. m. by Dr. Howard A. Rusk, on "The Medical, Social and Public Health Aspects of Rehabilitation."

**Bureau of Health Education.**—Dr. George Rosen, who has been district health officer, has been named director of the Bureau of Health Education of the City of New York Department of Health. He replaces Dr. Israel Weinstein, who was director of the bureau and is now on terminal leave. Dr. Rosen is a graduate of the University of Berlin, 1935, and has been editor of the *Journal of the History of Medicine* since its beginning in 1946.

**Dr. Houssay to Give Memorial Lecture.**—Dr. Bernardo A. Houssay, Buenos Aires, Argentina, will deliver the Adam M. Miller Memorial Lecture in the Polhemus Memorial Building of the Long Island College of Medicine March 18 at 4 p. m. on "Role of the Hypophysis in Carbohydrate Metabolism and Diabetes." The lectureship, established in 1936 by the Theta Chapter of the Phi Lambda Kappa Fraternity, was created in honor of the late Adam M. Miller, professor of anatomy 1914-1935 and dean of the Long Island College of Medicine 1921-1935.

**Dr. Hawley to Give the Bampton Lectures.**—Dr. Paul R. Hawley, Chicago, chief executive officer of the Associated Medical Care Plans and former chief medical director of the U. S. Veterans Administration, will give the second series of Bampton lectures in America at Columbia University, beginning May 9, on "New Medical Discoveries and Their Effect on the Public Health." The lectures, to be given in the McMillin Theater, will be open to the public. The first three lectures, May 9, 10 and 11, will deal with "Our Fabulous Blood," blood typing, transfusions, blood substitutes and the Rh factor. On May 12 Dr. Hawley will discuss developments in heart and lung surgery. The lectures on May 16, 17 and 18 will consider the prevention and treatment of mental disease and the socioeconomic aspects of medical care. Dr. Hawley will trace the economic history of medical care and the gradual development of public responsibility in the fields of health and medical care. The Bampton lectures in America were established by the bequest of Ada Byron Bampton Tremaine.

## OHIO

**Dr. Karsner Retires at Western Reserve.**—Dr. Howard T. Karsner, professor of pathology at Western Reserve University School of Medicine since 1914 and director of the Institute of Pathology, will retire from the medical faculty at the close of the present academic year. He will then become medical research advisor to the Surgeon General of the Navy. Dr. Karsner is the author of the well known book "Human Pathology," published in six editions.

**Residency Training Program in Psychiatry.**—A three year residency training program in psychiatry will be offered in the department of neurology and psychiatry of the Ohio State University, Columbus, and the Veterans Administration Facility at Chillicothe. Quarters and subsistence will be available at the hospital for single residents. Stipends for veteran residents will be $3,300 a year and will vary from $2,400 to $3,000 for nonveteran residents. Any one interested should write to Dwight M. Palmer, M.D., department of neurology and psychiatry, Ohio State University, Columbus 10.

## PENNSYLVANIA

**Recommendation of State Society Concerning Autopsies.**—A bill to establish in the state department of health a laboratory to render proper postmortem service to coroners in various counties in their investigation of sudden or violent deaths of a suspicious nature has been recommended for presentation to the general assembly by the Committee on Public Health Legislation of the Medical Society of the State of Pennsylvania. In a recent survey the medical society discovered that in two years in thirty-seven counties there were 9,533 sudden deaths and only 594 necropsies performed to determine the cause of these deaths. In the larger counties, facilities and personnel are available for more adequate service to the coroners.

### Philadelphia

**Dr. Joslin to Give Fraternity Lecture.**—Dr. Elliott P. Joslin, professor emeritus of clinical medicine, Harvard Medical School, Boston, will discuss "The Future Diabetic" at Hahnemann Medical College April 4. This is the third annual lecture given by the Phi Delta Epsilon Fraternity. All persons interested are invited.

**Fellowship in Endocrinology.**—A fellowship in obstetric and gynecologic endocrinology will be available at the Jefferson Medical College and Hospital on or about May 1 under the direction of Dr. Abraham E. Rakoff, assistant professor of obstetrics and gynecology. The fellowship is available to doctors of medicine who have had at least one year or its equivalent of postgraduate training in obstetrics and gynecology. Applicants should communicate at once with Dr. Lewis C. Scheffey, professor of obstetrics and gynecology, Jefferson Medical College and Hospital, Philadelphia 7.

## WEST VIRGINIA

**Public Health Council Meeting.**—The spring meeting of the Public Health Council will be held at the Daniel Boone Hotel in Charleston April 7-9 for the purpose of examining applicants for licensure to practice medicine in West Virginia.

**Hospitals Licensed Since Last July.**—As the result of the new hospital licensing law, which became effective July 1, 1948, 87 hospitals and nursing homes in the state have been licensed by the State Department of Health. All institutions so licensed were inspected by representatives of the department and the state fire marshal's office. Of the original number of 179 hospitals and nursing homes, only 120 are now in existence. Applications from 28 institutions are pending, awaiting required improvements. Seventeen institutions have suspended operations, of which 8 were general hospitals, 8 nursing homes and 1 a physician's office. As 25 of the institutions had less than five beds, they do not come within the classification of a hospital. Ten were adjudged boarding houses, and 7 changed names from hospitals to another category.

Dr. Newman H. Dyer, state health commissioner, has stated that no institution will be granted a license until it has fully complied with the regulations of the state fire marshal's office. As time will be needed to provide improvements necessary to meet minimum standards set by law, every consideration will be shown these institutions until the beginning of the next licensing year. Dr. Hu C. Myers of Philippi is chairman of the seven member advisory board, which was appointed in connection with the hospital licensing program for the purpose of reviewing and approving applications for license.

## WYOMING

**Frozen Animals Unfit for Food.**—The Wyoming State Department of Public Health and the U. S. Public Health Service have issued a special bulletin to clarify the legal status of the disposition of animals which have been frozen in storm areas. Animals not properly and completely bled are subject to rapid decay from bacterial invasion. Frozen animals are dehydrated, death having been preceded by exhaustion which facilitates the penetration through intestinal walls by such bacteria as Escherichia coli, Salmonella and Staphylococcus. It is for this reason that the U. S. Bureau of Animal Industry and the State Department of Public Health have declared that meat from animals killed by means other than accepted slaughtering methods is unfit for human consumption. It is illegal to salvage any carcass, or part thereof, derived from an animal dead from freezing, for use as human food. Animals partially frozen may be presented for use as food. It requires the professional judgment of a veterinarian in order to determine the proper disposition of salvageable carcasses. Use of "Regulations Governing the Meat Inspection of the U. S. Department of Agriculture," 1947, is recommended. Further information may be obtained from the Wyoming State Department of Public Health, Cheyenne.

## GENERAL

**Society Election.**—At the annual meeting of the Western Section of the American Urological Association in Coronado, Calif., January 17-19, Dr. Arno G. Folte, San Francisco, became president and Dr. George M. Fister, Ogden, Utah, was chosen president elect and Dr. Adolph A. Kutzmann, Los Angeles, secretary-treasurer.

**Automobile Dealers Give $1,500,000 for Cancer Research.**—The Alfred P. Sloan Foundation recently received a check for $1,525,167 from 10,000 General Motors automobile dealers throughout the country. The money was collected as a tribute to Alfred P. Sloan Jr., chairman of the board of General Motors and donor of the Sloan-Kettering Institute for Research, in recognition of his efforts on their behalf. The new fund is to be set up as a separate entity, the proceeds to be distributed by grants for research.

**Clinics in Anesthesiology.**—The Committee on Education of the New England Society of Anesthesiologists will hold all day clinics for physicians doing part time anesthesia and desiring like instruction in this field of medicine. The first will be held April 2 at the Rhode Island Hospital, Providence, under the direction of Dr. Meyer Saklad. The morning session will be devoted to clinical demonstrations and the afternoon to "Anoxia and Inhalation Therapy." On May 7 operative clinics will be held at the St. Francis Hospital, Hartford, Conn., under the direction of Dr. Stevens J. Martin. Lectures will be held in the afternoon. Sessions will begin at 8 a. m. Any physician may attend by making reservations in writing to the respective directors.

**Magazine Subscription Racket.**—The Prairie Farmer Protective Union has reported a midwest racket in which a solicitor posing as a young doctor promises to establish an office and start practice in a community if given enough magazine subscriptions. In all reported incidents so far the solicitor has said he is just out of medical college and does not have enough money to set up an office. An organization about which he is vague would outfit his office if he could get enough "points," which, he explains, are determined by the number of magazines he sells. An investigation has shown that none of the communities that contributed to these subscription racketeers has secured a doctor as promised. Anyone knowing the whereabouts of the operators would be performing a public service if he will notify the Prairie Farmer Protective Union, 1230 Washington Boulevard, Chicago 7.

**Annual Meeting on Industrial Medicine.**—The American Association of Industrial Physicians and Surgeons will hold its annual meeting April 5-9 at the Book-Cadillac and Statler hotels, Detroit. Among the speakers will be Dr. Trevor A. Lloyd Davies, Nottingham, England, who will speak on "Pneumonitis as It Affects the Industrial Worker," and Dr. Gunnar Fischer, Stockholm, Sweden, "Industrial Medicine in Sweden." Seven physicians will participate in a symposium on cariovascular disease in business and industrial employment on Wednesday morning. Plant tours will be arranged for delegates and members. Other industrial health associations meeting at this time are the American Conference of Governmental Industrial Hygienists, April 2-5; American Industrial Hygiene Association, April 5-7; American Association of Industrial Dentists, April 6-7, and the American Association of Industrial Nurses, Inc., April 5-9.

**Anniversary of Red Cross Nursing Service.**—The eighty-seventh birthday anniversary on March 12 of the late Jane A. Delano, founder of the American Red Cross Nursing Service, will be observed by the stepping up of Red Cross chapter effort throughout the country toward nurse enrolment for peacetime community service as well as preparedness for possible emergency. The new Red Cross chapter enrolment program, inaugurated a year ago, is designed to help meet community health needs by providing nurses with opportunity for "plus" service through established Red Cross programs such as home nursing, nurse's aide instruction, preparedness against disaster and the National Blood Program. To date, more than 1,276 nurses have been reported as enrolled under this plan. Many previously enrolled nurses also are participating in these programs. Miss Delano became chairman of the first national committee on Red Cross Nursing Service in 1909, when she was also superintendent of the Army Nurse Corps. In 1912 she resigned to devote full time as a volunteer in building up the Red Cross Nursing Service. Under her direction the Red Cross program in elementary hygiene and home care of the sick, taught by professional nurses, was begun in 1908. A course in home dietetics followed, and in 1912 the Red Sross Town and Country Nursing Service, forerunner of modern rural public health nursing, was established.

## FOREIGN

**United Nations Plans Health Studies.**—The United Nations World Health Organization will send teams of technical experts into four countries to undertake a special program of disease control, according to the *New York Times*. One mission will go to Pakistan to advise on malaria control; a second will go to Turkey and Egypt to carry out venereal disease control, and a third to Egypt and Pakistan to study antituberculosis programs. A special team is being sent to Ethiopia for sanitation studies and other public health work. The health agency, it is reported, will provide thirty fellowships to doctors and public health specialists in all four countries and in Iran.

**British Health and Tuberculosis Conference.**—The Commonwealth and Empire Health and Tuberculosis Conference, sponsored by the National Association for the Prevention of Tuberculosis, will be held in Central Hall, Westminster, London, July 5-8. Subjects under discussion will be tuberculosis as a world problem; modern trends in its treatment; organization of comprehensive tuberculosis schemes in the colonies, regional, county and county buroughs; problems of prevention and detection; BCG administration; rehabilitation of chronic disease and protection from bovine infection. The fee is 3 pounds 3 shillings for four days, or 1 pound 1 shilling per single day or session. The conference is open to all interested in preventive medicine, including doctors, industrial executives, nurses, social workers and public health authorities.

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# Marriages

John Alfred Emmert, Danville, Va., to Miss Olive Ann Gray of Hasbrouck Heights, N. J., November 6.

Peter F. Lansing, Peaks Island, Me., to Miss Carolyn Osgood of Wollaston, Mass., November 27.

John A. Griffin, Allentown, Pa., to Miss Emma Marie Ferry of Alburtis, R. I., November 20.

Rodney Ham Foss, Portland, Maine, to Miss Mary Louisa Roney of Cape Elizabeth, December 11.

James Craig Joyner to Miss Lucie Burke Alcott, both of New York, November 10.

# Deaths

**George Henry Hansmann** ⊕ Milwaukee; born in Manson, Ia., March 6, 1890; State University of Iowa College of Medicine, Iowa City, 1918; specialist certified by the American Board of Pathology, Inc.; member of the American Association of Pathologists and Bacteriologists and the Society for Experimental Biology and Medicine; at one time instructor in pathology at the Harvard Medical School in Boston, assistant professor of pathology and bacteriology at his alma mater, where he was chairman of the department, and associate professor of pathology at the Georgetown University School of Medicine in Washington, D. C.; formerly pathologist at the University Hospitals in Iowa City; served on the staffs of the Columbia and Milwaukee Children's hospitals; died in January, aged 58, of acute heart failure.

**Leo Samson Schwartz** ⊕ Brooklyn; Cornell University Medical College, New York, 1908; also a graduate in pharmacy; formerly on the faculty of the Long Island College of Medicine; fellow of the American College of Surgeons; specialist certified by the American Board of Obstetrics and Gynecology, Inc.; past president of the Medical Society of the County of Kings and the Brooklyn Gynecological Society; served on the staffs of the Israel-Zion Hospital and the Jewish Hospital, where he died December 31, aged 66, of cholelithiasis and postoperative circulatory collapse.

**William Joseph Tracey,** Norwalk, Conn.; University of the City of New York Medical Department, 1889; member of the American Medical Association; fellow of the American College of Surgeons; past president of the Fairfield County Medical Society and Norwalk Medical Society; first health officer in Norwalk and South Norwalk; for many years chairman of the board of education; a public school named in his honor; life member of the board of directors of the Norwalk Hospital, where he was on the staff; died December 17, aged 82.

**Edith Loeber Ballard** ⊕ Bay St. Louis, Miss.; Cornell University Medical College, New York, 1905; member of the American Medical Association and the Louisiana State Medical Society; died in New Orleans December 23, aged 73, of adenocarcinoma of the colon with metastases.

**Clara Knauff Bartlett** ⊕ Atlantic City, N. J.; National University Medical Department, Washington, D. C., 1899; Woman's Medical College of Pennsylvania, Philadelphia, 1900; an Associate Fellow of the American Medical Association; for many years school medical inspector; died December 15, aged 81, of heart disease.

**Robert Burns Barton** ⊕ Wellesley, Mass.; Boston University School of Medicine, 1926; died November 30, aged 48.

**Howard H. Beane,** Cleveland; Cleveland Medical College, Homeopathic, 1896; died December 9, aged 74, of cardiovascular disease.

**Norman Madrid Beatty** ⊕ Indianapolis; Indiana University School of Medicine, Indianapolis, 1927; member of the American Academy of Dermatology and Syphilology; died December 5, aged 46.

**William Truman Bennie** ⊕ Shaker Heights, Ohio; Indiana University School of Medicine, Indianapolis, 1927; died January 1, aged 45.

**Willoughby Dayton Bishop,** Greenville, Ohio; Starling-Ohio Medical College, Columbus, 1913; member of the American Medical Association; for many years secretary-treasurer of the Darke County Medical Society, of which he had been president, and the Ohio Federation of Public Health Officials; served during World War I; formerly city and county health officer; died December 7, aged 58, of uremia following cerebral hemorrhage.

**Charles Elliott BoDine,** Bangor, Me.; Tufts College Medical School, Boston, 1935; member of the American Medical Association; formerly resident in obstetrics and gynecology at the Carney Hospital in Boston; interned at the Eastern Maine General Hospital, where he was a member of the staff; served during World War II; died in Brewer, December 29, aged 42, of myocardial infarction.

**Martin Laurence Bodkin** ⊕ Brooklyn; College of Physicians and Surgeons, medical department of Columbia College, New York, 1894; fellow of the American College of Surgeons; on the staffs of the Caledonian, Midwood and St. Catherine's hospitals; died December 1, aged 79, of coronary occlusion.

**Thomas Toxey Box,** Fairfield, Ala.; Chicago College of Medicine and Surgery, 1916; served in France during World War I; member of the American Medical Association; at one time health officer of Washington, Winston and Choctaw Counties; served on the staff of the Employees' Hospital of Tennessee Coal, Iron and Railway Company, where he died December 2, aged 59, of a ruptured appendix and pulmonary embolism.

**Frederick Elmer Braucht,** Elkader, Iowa; Rush Medical College, Chicago, 1894; member of the American Medical Association; served during World War I; died December 4, aged 80, of angina pectoris.

**Andrew D. Bridges,** Portland, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1890; died in Gashland, December 26, aged 93, of pneumonia.

**Harry Brown Britton** ⊕ Ypsilanti, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1897; past president of the Washtenaw County Medical Society; served in France during World War I; assistant flight surgeon at the Willow Run Bomber Plant during World War II; formerly health officer; died January 7, aged 74, of carcinoma.

**Harry Clinton Brown,** Stockton, Kan.; Central Medical College of St. Joseph, Mo., 1905; member of the American Medical Association; for many years county health officer; died December 19, aged 74, of cerebral embolism.

**Rudolph H. Brown,** Centralia, Ill.; St. Louis College of Physicians and Surgeons, 1902; member of the American Medical Association; died in St. Mary's Hospital January 10, aged 69, of cerebral hemorrhage, arteriosclerosis and nephritis.

**Rollin H. Bunch,** Muncie, Ind.; American College of Medicine and Surgery, Chicago, 1904; member of the American Medical Association; served as mayor of Muncie; died December 9, aged 66, of coronary thrombosis and myocardial infarction.

**Frank Burzynski,** Chicopee, Mass.; Kansas City (Mo.) University of Physicians and Surgeons, 1924; died in the Mercy Hospital, Springfield, December 18, aged 62, of chronic rheumatic heart disease.

**Frank Ernest Butler** ⊕ Portland, Ore.; University of Oregon Medical School, Portland, 1916; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; served overseas during World War I; for many years affiliated with the Emanuel Hospital, where he died January 5, aged 60.

**Rupert Butler,** Springhill, La.; Memphis (Tenn.) Hospital Medical College, 1905; member of the American Medical Association; died December 3, aged 70.

**Louis Bernard Castell** ⊕ Washington, D. C.; George Washington University School of Medicine, Washington, D. C., 1912; also a graduate in pharmacy; at one time associated with the Indian Service; served on the faculty of Georgetown and George Washington universities; affiliated with Providence Hospital; died December 22, aged 65.

**Milton Hughes Christie,** Unity, Md.; Medical Department of the University of Wooster, Cleveland, 1891; died January 9, aged 90, of coronary occlusion.

**Haynsworth Dowling Clark,** Fort Pierce, Fla.; University of Maryland School of Medicine, Baltimore, 1914; member of the American Medical Association; past president of the Florida Railway Surgeons Association and the St. Lucie-Okeechobee-Indian River-Martin Counties Medical Society; affiliated with the Fort Pierce Memorial Hospital, where he died January 15, aged 56, of coronary thrombosis.

**Lambert B. Coblentz** ⊕ San Francisco; Cooper Medical College, San Francisco, 1904; specialist certified by the American Board of Internal Medicine; clinical instructor in medicine, emeritus, at the Stanford University School of Medicine; served during World War I; affiliated with Mount Zion, St. Luke's and the Stanford University hospitals; died January 29, aged 68, of coronary thrombosis.

**Everett Monroe Cooley,** Lawrenceville, Ill.; Kentucky School of Medicine, Louisville, 1892; served during World War I; died January 6, aged 79, of diabetes mellitus.

**Chester Charles Cott** ⊕ Buffalo; University of Buffalo School of Medicine, 1908; clinical professor emeritus of otolaryngology at his alma mater; specialist certified by the American Board of Otolaryngology; member of the American Academy of Ophthalmology and Otolaryngology; fellow of the American College of Surgeons; affiliated with the Buffalo General Hospital and the Edward J. Meyer Memorial Hospital; died December 4, aged 65, of carcinoma of the stomach.

**Alexander E. Dalton,** Cape Girardeau, Mo.; St. Louis College of Physicians and Surgeons, 1896; served as a member of the city board of health; affiliated with St. Francis Hospital, where he died December 16, aged 84, of heart disease.

**Edward John Davin,** New York; Columbia University College of Physicians and Surgeons, New York, 1912; formerly on the faculty of New York Polyclinic Medical School and Hospital; member of the American Medical Association; specialist certified by the American Board of Obstetrics and Gynecology; served during World War I and a short time during World War II; affiliated with Misericordia, Lincoln and St. Clare's hospitals; died December 5, aged 59.

**Joshua Judson Davis,** Smyrna, N. C.; University of Maryland School of Medicine, Baltimore, 1891; died in the Duke Hospital, Durham, January 15, aged 80, while undergoing an operation for carcinoma.

**Percy Joseph Delano** ⊕ Oak Park, Ill.; University of Illinois College of Medicine, Chicago, 1927; specialist certified by the American Board of Radiology; member of the Radiological Society of North America and the American College of Radiology; affiliated with the West Suburban Hospital; died in Chicago, January 13, aged 49, of burns received in a fire.

**James Thomas Doster Jr.** ⊕ Columbus, Miss.; Jefferson Medical College of Philadelphia, 1926; fellow of the American College of Surgeons; formerly owner of a hospital bearing his name; died January 1, aged 45, of heart disease.

**Fred James Douglas** ⊕ Utica, N. Y.; Dartmouth Medical School, Hanover, N. H., 1894; fellow of the American College of Surgeons; for many years member of the House of Representatives; formerly member of the city board of education, city health officer, commissioner of safety and mayor of Utica; on the staff of Faxton Hospital; consulting surgeon at Utica State and St. Elizabeth hospitals; died January 1, aged 79, of carcinoma of the rectum.

**John Edward Ellis** ⊕ West Point, Miss.; Memphis (Tenn.) Hospital Medical College, 1908; served as health officer of Clayton County; died January 4, aged 63, of heart disease.

**Victor Jacob Fingar,** West Ghent, N. Y.; Albany (N. Y.) Medical College, 1932; an assistant medical director of the Equitable Life Assurance Society of the United States in New York; served during World War II; died January 10, aged 41, of glioma of the brain.

**Harry William Fink** ⊕ Chicago; Rush Medical College, Chicago, 1921; died in Big Springs, Texas, January 2, aged 53, of cerebral hemorrhage and hypertension.

**Samuel Edgar Finley,** Brooklyn; University of Pennsylvania Department of Medicine, Philadelphia, 1893; died December 7, aged 79.

**James Thomas Fulkerson,** Stark City, Mo.; (licensed in Missouri in 1905); died December 11, aged 70, of cerebral hemorrhage.

**George Mason Graham,** Bessmay, Texas; Kentucky University Medical Department, Louisville, 1903; member of the American Medical Association; died December 21, aged 68, of carcinoma of the spine.

**James W. Griffin,** Lewisport, Ky.; Kentucky School of Medicine, Louisville, 1893; died November 21, aged 79, of leukemia.

**Henry Claude Guerin,** Nashville, Tenn.; University of Nashville Medical Department, 1905; member of the American Medical Association; died December 4, aged 71, of cerebral hemorrhage.

**Arthur Haim** ⊕ San Francisco; Hamburgische Universität Medizinische Fakultät, Hamburg, Germany, 1923; member of the Society of American Bacteriologists; formerly on the faculty of the University of California Medical School; served on the staffs of the University of California and Mount Zion hospitals; died recently, aged 50.

**James Elzie Harden,** Whigham, Ga.; University of Nashville (Tenn.) Medical Department, 1908; died December 9, aged 66, of carcinomatosis.

**Joseph F. Haselden,** Greelyville, S. C.; Maryland Medical College, Baltimore, 1904; died December 18, aged 79.

**Edwin Henry Hayman,** Ocean City, Md.; Jefferson Medical College of Philadelphia, 1899; formerly affiliated with the Veterans Administration Facility in Mountain Home, Tenn.; died December 23, aged 80, of coronary thrombosis.

**John Henry Hennies,** Brunswick, Ga.; International Medical Missionary College and Training School for Nurses, Atlanta, 1906; died December 4, aged 68, of heart disease.

**Donald Warner Herman** ⊕ Winsted, Conn.; Columbia University College of Physicians and Surgeons, New York, 1924; served as health officer; on the staff of the Litchfield County Hospital; died in the Hartford (Conn.) Hospital December 15, aged 49, following a cholecystectomy.

**Noah Sherman Hilty,** Bluffton, Ohio; Detroit Homeopathic College, 1904; formerly practiced in Pandora, where he served as mayor and as president of the board of education; died recently, aged 71, of diabetes mellitus and heart disease.

**Alfred Hoff** ⊕ St. Paul; University of Minnesota College of Medicine and Surgery, Minneapolis, 1910; clinical associate professor of medicine at his alma mater; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the board of trustees of St. Luke's Hospital; affiliated with the Ancker Hospital; died recently, aged 65, of heart disease.

**Victor Helmer Horning,** Chicago; Bennett Medical College, Chicago, 1912; member of the American Medical Association; a captain in the medical corps, Army of the United States, during World War II; for many years assistant chief surgeon for the Chicago and Northwestern Railroad; died in the Garfield Park Community Hospital December 3, aged 66, of acute myocardial infarction.

**Gideon Lyman Howell,** Trucksville, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1912; member of the American Medical Association; served on the school board; for many years affiliated with Nesbitt Memorial Hospital, Kingston; died January 13, aged 63, of coronary heart disease.

**John Danes Hubbard,** Cranston, R. I.; Hahnemann Medical College and Hospital of Philadelphia, 1933; member of the American Medical Association; fellow of the American College of Surgeons; medical examiner for Cranston; served during World War II; affiliated with the Roger Williams General Hospital, Providence, where he died December 9, aged 41, of acute coronary thrombosis.

**Ellis William Jones** ⊕ Los Angeles; Harvard Medical School, Boston, 1911; specialist certified by the American Board of Orthopaedic Surgery; member of the American Orthopaedic Association and the American Academy of Orthopaedic Surgeons; fellow of the American College of Surgeons; served on the staff of Cedars of Lebanon Hospital and the Hospital of the Good Samaritan, where he died December 4, aged 63, of pneumonia.

**Leonard Kawasaki,** Cincinnati; University of Cincinnati College of Medicine, 1929; member of the American Medical Association; died December 28, aged 45.

**William Edwin Keller,** Scranton, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1892; member of the American Medical Association; died in the Moses Taylor Hospital December 29, aged 76, of arteriosclerotic nephritis.

**Frank Edward Kiesler** ⊕ Chicago; Loyola University School of Medicine, Chicago, 1921; affiliated with St. Elizabeth Hospital, where he died December 8, aged 57, of gastric hemorrhage and duodenal ulcer.

**Archie Percival Kimball** ⊕ San Diego, Calif.; John A. Creighton Medical College, Omaha, 1908; fellow of the American College of Surgeons; formerly on the staff of the Yuma County General Hospital in Yuma, Ariz.; died December 1, aged 63, of carcinoma of the right ureter with widespread metastasis.

**James Charles Elliott King,** La Mesa, Calif.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1886; Chicago Medical College, 1890; emeritus professor of dermatology at the University of Oregon Medical School, Portland; specialist certified by the American Board of Dermatology and Syphilology; member of the House of Delegates of the American Medical Association in 1902; died in San Diego, December 25, aged 87, of uremia.

**Victor K. Knapp,** Nevada, Ohio; Medical College of Ohio, Cincinnati, 1896; died recently, aged 78, of heart disease.

**Henry Edward Kock,** Cincinnati; Cincinnati College of Medicine and Surgery, 1902; also a lawyer; died in the Christ Hospital December 23, aged 71, of carcinoma of the bladder with metastasis.

**Dwight Gregor Kreul** ⊕ Davenport, Iowa; Milwaukee Medical College, 1897; affiliated with Mercy and St. Luke's hospitals; died December 18, aged 78, of heart disease.

**George Winlock Lee,** Los Angeles; Medical College of Indiana, Indianapolis, 1904; an officer overseas during World War I; at various times on the staffs of Veterans Administration hospitals in different locations; died December 15, aged 72.

**William Arthur Lee** ⊕ Denison, Texas; University of Texas School of Medicine, Galveston, 1906; chairman of the board of directors of the Madonna Hospital, where he died December 20, aged 67, of coronary thrombosis.

patient. In his circular the Minister points out that outpatient treatment has often been given in the past because the patient had no family doctor. Under the National Health Service this should no longer occur. No patient should continue as an outpatient if his case is suitable for treatment by a general practitioner. The only exceptions should be emergency cases, patients who need specialist supervision over a period and those under treatment for venereal diseases or whose attendance is desirable for medical teaching or research.

To reduce waiting time the Minister suggests the introduction of an appointment system, which should be regularly reviewed and for which the cooperation of all the staff concerned must be secured. Times of clinics should meet local circumstances, such as early closing day and times of bus services. Evening treatment sessions should be arranged so that working time need not be unnecessarily lost by patients. For the comfort of the patients the Minister calls for canteens, cheap but comfortable chairs instead of unsightly and uncomfortable forms, and cleaned and redecorated premises.

## BRAZIL

*(From Our Regular Correspondent)*

Rio de Janeiro, Jan. 23, 1948.

### Mortality from Communicable Diseases

The Statistical Division of the National Department of Health has released provisional information about the mortality from communicable diseases for the period January to October of this year for a group of twenty cities of Brazil, representing all but one of the twenty states and the Federal District (city of Rio de Janeiro).

*Tuberculosis is by far the deadliest communicable disease*, with the annual death rate of 246 per hundred thousand population for the whole sample of urban population, the individual cities ranging from 78 per hundred thousand, for Cuiabá in the central tropical region of the country to 468 and 477, respectively, for Salvador, state of Bahia, and Victoria, state of Espirito Santo, both in the tropical middle Atlantic coast. The two largest cities, Rio de Janeiro and São Paulo, present the tuberculosis death rates of 299 and 110, respectively, the difference being ascribable to the cooler climate, larger percentage of white population and higher average of economic condition in the latter city.

Next to tuberculosis comes malaria, with the annual death rate of 18.4 per hundred thousand for the whole aggregate of urban population, the individual cities varying from zero or very low death rates for the cities in the cooler Southern part of the country (average death rate of 2.5 per hundred thousand) to high death rates for the equatorial Amazon valley (Manaos 197, and Belem 186 per hundred thousand).

Dysentery (about 80 per cent bacillary) ranks third, with the death rate of 12.5 per hundred thousand for the whole group, ranging from 3.9 per hundred thousand for Rio de Janeiro to 31.6, 55.0 and 83.7 per hundred thousand, respectively, for Fortaleza, São Luis and Maceió in Northern Brazil.

Whooping cough, typhoid and diphtheria, with annual death rates of 9.1, 7.7 and 4.4 per hundred thousand, respectively, for the aggregate of twenty cities, have a narrow range of variation from city to city, the rates for Rio de Janeiro and São Paulo being 9.7 and 7.0 per hundred thousand, respectively, for whooping cough, 9.6 and 3.4 for typhoid, and 4.0 and 2.8 for diphtheria. Smallpox, poliomyelitis, epidemic encephalitis and rabies are comparatively minor causes of death, with annual death rates of 0.3, 0.3, 0.1 and 0.3 per hundred thousand, respectively. Endemic typhus is confined within the state of São Paulo, which is a focus of a particular type of the disease. The annual death rate from this disease, for the city of São Paulo, is 0.6 per hundred thousand.

## ITALY

*(From Our Regular Correspondent)*

Dec. 20, 1948.

### Society of Internal Medicine

In the historic palace of Archiginnasio at Bologna, the Italian Society of Internal Medicine heard reports on three subjects: pain associated with visceral disturbances, hemoplasmopathies and cephalea.

### Visceral Pain

Prof. Lunedei, the University of Firenze, presented a report on visceral pain for the Society of Internal Medicine; Prof. Giovanni Paroli, the University of Perugia, for the Society of Obstetrics and Gynecology, and Prof. A. Comolli, the University of Florence, for the Italian Society of Surgeons. Instead of the old classification of visceral pain into splanchnic and somatic pain, Prof. Lunedei suggested a more complete classification. He distinguished visceral pain of "deep type" from visceral pain of "superficial type."

Prof. Giovanni Paroli, Perugia, reported his studies on pain in the genital organs of women. He considered pain of the adnexa, pain of the body of the uterus and pain of the cervix. One may effectuate an exact distinction between these three deep localizations through the radiation of the pain becoming fixed at the height of the vertebral zone. The speaker then discussed the various methods of anesthesia during delivery and particularly caudal anesthesia using an oily vehicle.

Prof. Gasbarrini, rector of the University of Bologna, Alessandrini, Bacialli, Lelli-Mami, Casati and many others participated in the discussion.

### The Hemoplasmopathies

Professors Cesa-Bianchi and Poli, both of the University of Milan, presented reports on the pathology and symptomatology of hemoplasmopathies. This means the biologic and biochemic manifestations resulting from alteration of the protein constitution of the blood. Poli discussed the laboratory procedures by which these manifestations may be ascertained, and from the clinical point of view the consequences for which these manifestations may be responsible. He distinguished between primary and secondary hemoplasmopathies. The secondary he divided into "typical" forms such as may be observed in plasmocytoma, leishmaniasis, lymphogranuloma inguinale, benign granuloma of Besnier-Boeck-Schumann and measles. The speaker emphasized that "lipid nephrosis" is not a renal disease, but a hemoplasmopathy, a disease of the plasma in which the kidney participates. This participation of the kidney first remains insignificant, but successively the continuous impregnation of the glomeruli with filtrating protein material may produce phenomena of glomerulonephrosis which are capable of causing glomerular insufficiency. Professors Villa, Fanutti, Travia, Sotgiu, Sega, Melli, Puddu, Baserga, Coppo and Dominici Frada participated in the discussion of this subject.

### The Cephaleas

Prof. E. Greppi of the University of Florence was the speaker on the third subject of the Congress. He distinguished ten *clinical forms of cephaleas*: (1) psychogenic (hysteria); (2) diencephalic or central; (3) serous meningitic or hydrocephalic; (4) cephalea due to rhinosinusitis or (5) due to hyposthenic vasoneurosis (cranial neurosis) or (6) due to hypersthenic vasoneuroses (plethoric states) or (7) due to arterial hypertension; (8) hemicrania due to osteoperiosteal productive craniopathies (hyperostotic endocraniosis, Paget's disease) or (9) due to paracranial myopathia or (10) due to suboccipital myositis and fibrositis.

For every type of cephalea the speaker gave the pathogenic interpretation and the treatment. Professors Belloni, Lunedei, Melli, Mariani and Sabatini participated in the discussion of the subject.

# Medical Motion Pictures

## FILM REVIEWS

The following are a series of **Filmstrips** prepared by the Department of Rehabilitation and Physical Medicine of New York University College of Medicine, New York. Procurable on purchase from Filmstrips Inc., 1307 Sixth Avenue, New York.

**I. Crutch Exercises**, no. 101, deals with crutch exercises. It explains the necessity for preliminary bed and mat exercises and shows in detail the six key exercises which are used with the patient standing on crutches close to a wall. A group of exercises performed away from the wall are shown, and it is pointed out that these exercises must be mastered before actual crutch walking is attempted.

**II. Crutch Walking: The Four Point Gaits**, no. 102, shows in detail the simple four point gait and the four point alternate gait.

**III. Crutch Walking: The Tripod Gaits**, no. 103, illustrates the tripod alternate gait, the tripod simultaneous gait, the swing to gait and the swing through gait.

These filmstrips show an actual patient performing each step in the exercise or gait which is described and at the same time show a written description of each step. They will be especially valuable for use in any department of physical medicine or in any rehabilitation center for training patients visually in the art of crutch walking. These filmstrips are highly recommended and should be a part of the armamentarium of every center where crutch walking is being taught.

**Pentothal Sodium in Obstetrics.** 16 mm., color, silent, 1,073 feet (1 reel), showing time thirty-four minutes. Prepared in 1947 by Louis M. Hellman, M.D., Associate Professor of Obstetrics, Johns Hopkins University Medical School, Baltimore. Produced by Mervin LaRue, Inc., Chicago. Procurable on loan from: Abbott Laboratories, North Chicago, Ill.

The essential aims in achieving satisfactory obstetrical anesthesia are presented. A summary of over 3,000 deliveries is illustrated by animated charts which compare the results of a series of patients who received intravenous thiopental sodium (pentothal sodium®) with a group who received gas-oxygen-ether anesthesia. Various factors, such as stillbirths, neonatal mortality and type of delivery, were compared with the two methods of anesthetic management. The effect of the anesthesia on spontaneous and operative deliveries was also presented. Some obstetricians may not approve the large percentage of forceps deliveries illustrated. They do not tell us how many times it was necessary to use oxygen and how near some of the mothers came to serious collapse. The multiplicity of charts was confusing, and it is suggested that a clearer presentation could be made if fewer and only the most essential charts be used. Animation of the charts was excellent.

The sequence showing the preparation of thiopental solution could be satisfactorily deleted, particularly since these scenes are photographically poor in comparison with the excellent photography of the rest of the film. The conditions of preparation of thiopental should be criticized, particularly when the thiopental solution may be stored for three or four days. The possibility of contamination of the solution is ever present unless sterile gloves are worn during its preparation. The total dosage of thiopental was shown only once and then was combined in a chart presenting maternal and fetal blood levels at various minutes following the intravenous injection. It would be wise to indicate more definitely the dosage, so that a clearer impression of the dosage range could be obtained. Although the text stressed the use of mask oxygen during thiopental anesthesia, this practice was not sufficiently demonstrated. No mention was made of the advantages in the use of 50-50 mixtures of nitrous oxide–oxygen during thiopental anesthesia in decreasing the amount of thiopental and increasing the blood oxygen level.

Brief views of a multiplicity of surgical procedures were presented, including Rubin's test, vaginal delivery with low forceps, breech or spontaneous, and abdominal delivery by cesarean section. The insufficient relaxation obtained from thiopental sodium for version and extraction was discussed. The immediate postoperative care of the infant was wisely included. One wonders whether it is necessary to put a patient to sleep to do a sterile vaginal examination and rupture the membranes or if it is necessary in order to do a dilatation and curettage after an incomplete abortion; certainly it is not necessary to do so in order to apply the Rubin test. The technic after delivery shows potential contamination from holding the baby too close to the vulva.

This film portrays a new method of anesthesia in obstetrics; however, repeated viewings are necessary to grasp the message. A simpler script would present its message much more forcefully and with less confusion in the viewer's mind. It would be of interest to trained anesthesiologists but might be misleading to others in its present form.

**This Way to Nursing.** 16 mm., black and white, sound, 700 feet (1 reel), showing time twenty minutes. Prepared in 1948 at the Mt. Sinai Hospital, New York. Officially endorsed by the United States Public Health Service, National Student Nurse Recruitment Committee of the American Hospital Association and the National Committee on Careers in Nursing. Produced and procurable on rental or purchase from Emerson Yorke Studio, 36 West 45th Street, New York 19.

This film is designed to show the theoretical and practical instruction in a student nurses' course of an accredited school of nursing. It begins with the student nurse's entrance to school and depicts her six month trial period, at the end of which she receives her cap. The classrooms for teaching such subjects as chemistry, biology, anatomy and nursing arts are well illustrated. The student is portrayed at the bedside of the patient applying her knowledge of nursing arts and also is shown attending patients in the outpatient clinic. The sequence on bed making is rather long and overdone. The dignity of the profession is stressed and the production is appealing without forcing the point. The recreational facilities and social activities of the school are well demonstrated. The film terminates by showing various fields of nursing in which a graduate may serve. This motion picture will be of interest to groups who are concerned with nurse recruitment.

## NEW MEDICAL MOTION PICTURE ADDED TO A. M. A. MEDICAL MOTION PICTURE LIBRARY

**Polio Diagnosis and Management.** 16 mm., black and white, sound, 2,290 feet (1 reel), showing time fifty-seven minutes. Prepared in 1948 by H. J. Seddon, Professor of Orthopaedics, Oxford University, London, and others. Produced by Crown Film Unit, London. Procurable on loan (service charge $4) from: Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

The major portion of this film deals with a careful review of the diagnostic signs of early and more advanced poliomyelitis. By means of well prepared charts, it illustrates the incidence of poliomyelitis in Great Britain, where a decided increase occurred since the condition was first encountered in 1912.

The condition of 1 patient is followed from the time of the earliest symptoms until the last stage of a well planned program of rehabilitation, which includes the employment of physical medicine, psychosocial adjustment and vocational retraining in an attempt to achieve maximal function and adjustment of the individual and to prepare him physically, mentally, socially and vocationally for the fullest possible life compatible with his abilities and disabilities.

It is recommended especially for general practitioners, pediatricians, orthopedists, physiatrists and neurologists who desire a description of the diagnostic aspects of poliomyelitis as related to over-all management of the disease.

The rather unconventional use of the term "polio" in the title results from the fact that the idea is advanced that poliomyelitis and polioencephalitis can be considered as one disease.

This is a well planned educational motion picture. The photography is good.

# Current Medical Literature

## AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

### Annals of Allergy, Minneapolis

6:485-628 (Sept.-Oct.) 1948

Diagnostic Cutaneous Reactions to Intradermal Injection of Natural and Artificial Antibody and of Antigen Prepared from Streptococci Isolated in Studies of Diverse Diseases. E. C. Rosenow.—p. 485.

Trimeton in Treatment of Allergic Diseases. F. W. Wittich.—p. 497.

Environmental Excitants of Idioblastic Allergy (Inhalants). A. F. Coca.—p. 501.

Dust-Seal: Its Use in Avoidance of "House Dust" by Dust-Sensitive Persons. A. F. Coca.—p. 506.

Reactions to Histamine Iontophoresis in Therapy of Multiple Sclerosis: Preliminary Report. H. A. Abramson.—p. 511.

*Sensitivity to Mercurial Diuretics: Report of Case of Urticaria Due to Mercupurin. P. M. Gottlieb.—p. 518.

Comparative Study of Commercial Nebulizers. G. F. Harsh.—p. 534.

Allergic Rhinitis: Complete Dental X-Ray Examination in Search for Dental Foci of Infection. M. Millman.—p. 547.

Multiple Sclerosis—Treatment with Histamine and *d*-Tubocurarine. H. D. Jonez.—p. 550.

Chemical Concept of Immunity. W. J. Suer.—p. 564.

Clinical Observations with Thephorin—New Antihistaminic Drug. L. Sternberg and J. Gottesman.—p. 569.

Adequate Diets in Advanced Chronic Asthma. G. L. Waldbott, J. J. Shea and M. M. Harrington.—p. 572.

*Sensitization to Petrolatum in Ointment Bases. S. J. Levin and Selma S. Moss.—p. 579.

Study of Atopic Eczema: I. Further Observations on Allergy to Human Dander. II. Cutaneous Reactions to Eczema Scales. F. A. Simon.—p. 584.

Ragweed Dermatitis: Therapy by Oral Route. B. J. Slater and N. Francis.—p. 594.

**Sensitivity to Mercurial Diuretics.**—Gottlieb shows that mercurial diuretics may act as allergens, giving rise to a variety of clinical manifestations and even fatalities. These potent drugs may also produce untoward reactions by any one of several other mechanisms, of which may be mentioned primary toxicity of the mercury, especially on the heart, disturbances of plasma volume and fluid balance, electrolyte imbalance, "speed shock," overdigitalization and renal complications. Hence, it is incumbent on the physicians to study each such case as carefully as possible in an effort to determine the cause. From the allergic standpoint, patch-abrasion and patch tests would appear to be the most informative. Fortunately, the over-all incidence of untoward reactions to these valuable drugs appears to be low. A case is reported in which generalized urticaria followed the fifth and sixth injections of mercurophylline. The causation of the eruption was confirmed by a positive patch-abrasion (scratch-patch test). The minute amount of the drug absorbed from the test site evoked a focal reaction in the form of further urticaria. It is recommended that the scratch-patch test be more extensively employed in suspected drug allergy.

**Sensitization to Petrolatum in Ointment Bases.**—Levin and Moss direct attention to the fact that many of the patients with chronic dermatitis presenting themselves for allergic study have been under treatment for months or years. These patients have had many ointments prescribed, the bases of which almost invariably contain petrolatum. Sensitivity may be acquired more readily through the broken than through the normal skin. The conditions for the acquisition of secondary sensitivities in cases of dermatitis are ideal; i. e., the repeated and frequent application of a substance to the broken skin over a long period of time. It is not surprising, therefore, that under these conditions sensitivity to medicaments is frequently encountered. Six cases of definite sensitivity to petrolatum or related substances are reported. Patch tests on normal skin for purified petrolatum rarely elicit positive reactions. Usage tests are a valuable means of making a diagnosis of petrolatum sensitivity. The results may be positive on affected sites and later negative on the same healed sites. In view of the widespread use of ointment bases containing petrolatum and/or mineral oil for the local treatment of the allergic dermatoses, the possibility of sensitization to these items should be kept in mind. Recently the authors have encountered 4 additional cases of definite sensitivity to petrolatum. These patients were all negative to patch tests and positive to the usage tests carried out on the affected sites.

### Annals of Surgery, Philadelphia

**128**:321-608 (Sept.) 1948

Strictures of Common Duct. W. H. Cole, J. T. Reynolds and C. Ireneus Jr.—p. 332.

Quantitative and Qualitative Control of Bile Flow and Its Relation to Biliary Tract Surgery. R. R. Best.—p. 348.

Splenectomy: When Is It Indicated? F. H. Lahey and J. W. Norcross.—p. 363.

Treatment of Renal Insufficiency in Surgical Patient. F. A. Coller, K. N. Campbell and Vivian Iob.—p. 379.

Significance of Urine Chloride Determination in Detection and Treatment of Dehydration with Salt Depletion. K. K. Van Slyke and E. I. Evans.—p. 391.

Stress, Strain and Sutures. P. B. Price.—p. 408.

*Further Studies on Cytologic Method in Problem of Gastric Cancer. H. Ulfelder, Ruth M. Graham and J. V. Meigs.—p. 422.

Anterior Resection for Malignant Lesions of Upper Part of Rectum and Lower Part of Sigmoid. C. F. Dixon.—p. 425.

Significance of Protein-Bound Blood Iodine in Patients with Hyperthyroidism. G. M. Curtis and R. E. Swenson.—p. 443.

Dorsal Cordotomy for Painful Phantom Limb. J. Browder and J. P. Gallagher.—p. 456.

Comparative Study of Subtotal Gastrectomy With and Without Vagotomy. R. Colp, P. Klingenstein, L. J. Druckerman and V. A. Weinstein.—p. 470.

*Response to Vagotomy in Idiopathic Ulcerative Colitis and Regional Enteritis. C. Dennis, F. D. Eddy, H. M. Frykman and others.—p. 479.

Pharmacologic Factors Influencing Collateral Respiration; Possible Relation to Etiology of Pulmonary Complications. R. D. Alley and G. E. Lindskog.—p. 497.

*Studies on Use of Polythene as Fibrous Tissue Stimulant. G. H. Yeager and R. A. Cowley.—p. 509.

Prothrombin Activity: Diagnostic Test for Early Postoperative Venous Thrombosis. Rachel S. Sandrock and E. B. Mahoney.—p. 521.

*Endothelioma of Bone (Ewing's Sarcoma). B. L. Coley, N. L. Higinbotham and L. Bowden.—p. 533.

Further Experiences with Peritoneal Irrigation for Acute Renal Failure: Including Description of Modifications in Method. H. A. Frank, A. M. Seligman and J. Fine.—p. 561.

**Cytologic Method in Gastric Cancer.**—Ulfelder and his associates made a study of the most suitable technic for the cytologic study of the gastric contents in patients suspected of having cancer of the stomach. Particular emphasis has been placed on the method of collecting fluid. A number of additional openings are made in a size 14 Levine tube. It is introduced through the nostril; the patient is allowed to drink tap water to facilitate this maneuver. The stomach is then evacuated. This is the first specimen. One hundred cubic centimeters of isotonic sodium chloride solution is injected, the tube is clamped and the patient lies first on one side, then on the other, then on his face, and finally sits up or walks. The saline solution is partially withdrawn and reinjected several times during this procedure. Finally the stomach is again aspirated until empty. Both samples of fluid are centrifuged immediately, the supernatant fluid poured off, and thin smears made from the sediment. These are fixed and stained by Papanicolaou's method. Forty-eight patients have been studied in this fashion. Satisfactory cellular preparations were secured in 45 cases. Operation has disclosed carcinoma of the stomach in 14, and 12 of these were diagnosed correctly by this method. The accuracy of this method of diagnosis has increased since the introduction of the modifications described.

**Vagotomy in Idiopathic Ulcerative Colitis and Regional Enteritis.**—Dennis and his associates sectioned the vagus nerves in a girl, aged 20, who previously had undergone removal of the entire colon and five sixths of the ileum, and in whom severe involvement of the remaining bowel failed to respond to conservative measures. Vagotomy plus revision of ileostomy resulted in great improvement. This result prompted the authors to employ vagotomy in 4 patients without other surgical therapy. After six months 3 of these patients presented normal proctoscopic findings, and the fourth was reported as "healed ulcerative colitis." Of 28 patients who have been subjected to vagotomy since then, 25 were available for follow-up. Most of the clinical results have been encouraging in idiopathic ulcerative colitis as well as in regional enteritis. The response is usually best in cases in which there is not great loss of distensibility of the colonic wall. Patients with extensive fibrosis in the bowel wall, as a result of colitis, may take many months to improve after vagotomy. The mechanism by which vagal section changes the course of idiopathic ulcerative colitis is unsettled. The reduction in colonic tone which regularly follows vagotomy would suggest that relief of spasm is important. It appears possible that much of the benefit may accrue from protection of the mucosa from the reflex effects of the violent emotional stress to which these patients are subject.

**Polythene as Fibrous Tissue Stimulant.**—Yeager and Cowley point out that the irritating properties of cellophane have been utilized in obliteration of aneurysms and interruption of large vessels. Cellophane and cellophane-polythene (polyethylene) have been recommended because of physiologically inert characteristics and lack of fibrous tissue-stimulating characteristics. Clinical use is being made of a similar or related substance with end results that are diametrically opposed. Correspondence with the du Pont Company revealed that there is apparently some confusion in identity between cellophane and polythene. Polythene-du Pont is a long-chained polymer of ethylene. This product is polythene with less than 1 per cent of dicetyl phosphate. On the basis of animal experiments the authors believe that pure polythene does not cause a fibrous tissue reaction. Polythene film prepared by the "stripping process" of the du Pont Company is adulterated by dicetyl phosphate, which apparently is the tissue-excitant factor. The effects of polythene-du Pont on a diffuse dilatation of common carotid artery and on a fusiform aneurysm of the abdominal aorta are illustrative of the clinical application of the principle of treatment by fibrosis. After presenting the histories of these 2 patients the authors discuss implantation of polythene–du Pont into the abdominal wall, having used such implants in 11 inguinal and 4 ventral hernias. They conclude that the principle of tissue fibrosis offers a method of obliterating aneurysms and may be useful in fascial defects and recurring hernias. Conflicting results regarding the use of polythene in aneurysms, patent ductus arteriosus and obliterative procedure are probably due to variances in method of manufacturing the film. Implantation of polythene–du Pont when fibrous tissue reaction is not indicated would be most undesirable. Clinical use of cellophane, polythene or any other plastic requires knowledge of both the chemical and the physical characteristics of the product being used.

**Endothelioma of Bone (Ewing's Sarcoma).**—According to Coley and his associates there exists a specific type of malignant bone tumor, now designated as endothelioma or Ewing's sarcoma, which is a disease entity. Earlier pathologists classified this tumor with the heterogeneous and inclusive category "round cell sarcoma." The authors review the cases of Ewing's sarcoma observed at the bone tumor service of Memorial Hospital of New York during the thirty year period from 1918 through 1947. They take into consideration only the histologically proved cases, which number 91. Attention is called to the predominance of the male sex, the preponderance of cases in the age group from five to 25 years and the simulation of an infectious or inflammatory process as evidenced by frequent febrile reaction, leukocytosis and even the roentgenographic appearance. Sometimes it is difficult to distinguish this disease from osteogenic sarcoma. Securing microscopic confirmation prior to treatment is important because of the masking of the histologic picture following even small doses of roentgen therapy. In young children Ewing's sarcoma may be difficult to distinguish from metastatic neuroblastoma; in older children, adolescents and young adults, reticulum cell sarcoma of bone and angiosarcoma may closely resemble it. The more favorable prognosis of reticulum cell sarcoma of bone and its response to smaller doses of roentgen rays than are required to inactivate Ewing's sarcoma make its recognition important. Treatment of Ewing's sarcoma has yielded poor results. Only 3 out of 73 patients survived five years or more. Regardless of the method employed, the ultimate result is practically always death from widespread metastases.

## Archives of Neurology and Psychiatry, Chicago

59:567-690 (May) 1948

*Arteriovenous Aneurysms of Brain: Their Diagnosis and Treatment. H. Olivecrona and J. Riives.—p. 567.
*Headache: Common Symptom of Cervical Disk Lesions. Report of Cases. A. A. Raney and R. B. Raney.—p. 603.
Sociopsychologic Structure of the SS: Psychiatric Report of the Nürnberg Trials for War Crimes. L. Alexander.—p. 622.
Metastatic Tumors of Central Nervous System. I. Intracerebral Metastases As Only Evidence of Dissemination of Visceral Cancer. C. Rupp.—p. 635.
Prognostic Significance of Incidental Acute Somatic Disorders in the Course of Psychoses: Reevaluation of Five Cases Fourteen Years Later. A. Gordon.—p. 646.

**Arteriovenous Aneurysms of Brain.** — Olivecrona and Riives say that among 3,206 verified brain tumors treated at their clinic, there were observed 60 cases (1.8 per cent) of arteriovenous aneurysms. The condition is about twice as frequent in men as in women. In 5 cases the blood supply came largely through branches of the external carotid artery. In 2 cases the aneurysm was located in the distribution of the vertebral artery. In the remaining cases the blood supply came exclusively from branches of the internal carotid artery. The cardinal symptoms of arteriovenous aneurysm are epilepsy, subarachnoid hemorrhage and intracerebral hemorrhage with hemiplegia. A systolic murmur was observed in only 8 cases. It is always present when branches of the external carotid artery contribute to the blood supply of the malformation. A typical calcification was observed in 6 cases. Epileptic fits were not only the commonest initial symptom but the most constant symptom of all. Headache was a frequent complaint but was not usually characteristic. A choked disk was observed in only 25 per cent of the cases. Mental changes were frequent. Encephalographic studies were carried out in most cases. The most frequent observation was cerebral atrophy. Sometimes the malformation was large enough to cause dislocation, suggestive of an expanding lesion. The diagnosis of an arteriovenous aneurysm should always be confirmed by arteriographic study, preferably by the percutaneous injection of iodopyracet. Both lateral and frontal exposures should be made. The authors agree with Cushing and Bailey that ligature of accessible arteries is useless. Decompression is rarely indicated, since pressure symptoms are habitually absent. Ligature of the carotid artery is inadvisable, because it involves the risk of hemiplegia and its effect on the lesion is uncertain. The choice lies between removing the lesion and leaving it alone. In the latter case roentgen treatment may be tried, even if not much is to be expected from such therapy. In the present series the aneurysm was removed in 24 cases, with 3 fatalities. One third of the total number of patients operated on are practically well.

**Headache a Symptom in Cervical Disk Lesions.**—The Raneys call attention to the fact that many patients complain of a headache when, in reality, the discomfort is in the neck. Many persons subject to soreness, stiffness, aching or pain in the lower cervical, pectoral or brachial region decide that these symptoms are due to neuritis, rheumatism, arthritis or a cold settled in the neck. Assuming the condition to be benign, the patient disregards it. If, however, the discomfort later extends to the head, he fears that the headache is a premonitory sign of serious illness; he complains to his physician of the headache and may never tell him of the associated symptoms. Lesion of the cervical disk is one of the commonest pathologic conditions of the cervical portion of the spine, and one of the commonest symptoms resulting therefrom is headache. Headache due to pathologic cervical disk is generally associated with such symptoms, so that the responsible factor is suspected when a detailed history is obtained, and the diagnosis is established by characteristic physical and roentgenographic findings. In adults, especially, lesions of the disk are sufficiently common so that not infrequently they are associated with other pathologic processes. One must be cautious in assuming that the proved pathologic disk is the only lesion present unless it suffices to explain all the symptoms and signs. Headaches following spinal puncture or head injury, for example, are aften due to lesions of a cervical disk. The authors present cases in which headache was due to a lesion of a cervical disk.

## Blood, New York

### 3:1073-1212 (Oct.) 1948

Historical Notes on Blood Platelets. L. M. Tocantins.—p. 1073.
Role of Allergy in Pathogenesis of Purpura and Thrombocytopenia. F. W. Madison.—p. 1083.
Study of Bone Marrow from 36 Patients with Idiopathic Hemorrhagic (Thrombopenic) Purpura. L. W. Diggs and J. S. Hewlett.—p. 1090.
*Thrombocytopenic Purpura Complicating Gold Therapy for Rheumatoid Arthritis: Report of 3 Cases with Spontaneous Recovery and 1 Case with Recovery Following Splenectomy. S. R. Mettier, Alice McBride and J. Li.—p. 1105.
Inconstancy and Variability of Vascular Fragility Test Even in Purpuric Conditions. J. Roskam, C. Renard and L. Swalüe.—p. 1112.
*Value and Limitations of Coagulation Time in Study of Hemorrhagic Diseases. A. J. Quick, Rene Honorato C. and M. Stefanini.—p. 1120.
Activation of Prothrombin, with Special Reference to "Thromboplastic Enzyme" (Tryptase). J. H. Ferguson, B. L. Travis and E. B. Gerheim.—p. 1130.
Effect of Intravenous Injection of Trypsin Inhibitor on Coagulation of Blood. H. J. Tagnon and J. P. Soulier.—p. 1161.
Fibrinolysis. Its Mechanism and Significance. R. G. Macfarlane and Rosemary Biggs.—p. 1167.
*Hemorrhagic Diathesis Associated with Presence of Anticoagulant in Circulating Blood. Case Report and Laboratory Studies. J. P. Soulier and M. Burstein.—p. 1188.
Relationship Between Heparin Dosage and Clotting Time. L. B. Jaques and Ann G. Ricker.—p. 1197.

**Thrombopenic Purpura Complicating Gold Therapy.**—Mettier and his associates point out that during the past seven years in the wards and outpatient department of the University of California Hospital, 160 patients on whom a diagnosis of rheumatoid arthritis had been made were given gold salt therapy. During the treatment in 4 of the patients thrombopenia and purpuric manifestations developed. In 3 patients there was a spontaneous remission and the hemorrhagic tendency disappeared in about one week's time. In the fourth patient there was a second occurrence of thrombopenia which persisted for four months and finally failed to respond to transfusion. Splenectomy was followed by a dramatic rise in the blood platelets and recovery of the patient. In none of the other reported cases of thrombopenia secondary to gold therapy had splenectomy been attempted. In the present case the mild hemorrhagic disturbance of four months' duration became suddenly accelerated by the appearance of severe bleeding from the mucous membranes. It was felt that since the life of the patient was in danger splenectomy was advisable. Soon after the operation there was a dramtic response of the platelets which led to the recovery of the patient.

**Coagulation Time in Hemorrhagic Disease.**—Quick and his associates mention the different methods that have been recommended for the determination of the coagulation time and point out that this test is one of the most prone to be misinterpreted. On the basis of their critical evaluation of this test, they emphasize that the coagulation time is a measurement of the intrinsic power of the blood to convert fibrinogen to fibrin. It is an empiric test no matter how performed, and therefore in order to be reliable must be done on venous blood under strictly controlled conditions. A recommended procedure is outlined. The coagulation time is prolonged in hemophilia, hypoprothrombinemia, afibrinogenemia and heparinemia. In hemophilia, the coagulation time theoretically is a measure of the severity of the disease but practically is of limited value since the coagulation time may be within normal limits in some patients; the prothrombin consumed in the coagulation of hemophilic blood is therefore a better guide for diagnosis. The coagulation time in hypoprothrombinemia is relatively little prolonged until a drastic reduction occurs. The test is therefore of no value for establishing a hemorrhagic condition in hypoprothrombinemia. In afibrinogenemia the blood is incoagulable. A small amount of fibrinogen restores the coagulation time to normal. The presence of heparin increases the coagulation time. The test is therefore useful in controlling the therapeutic action of *this drug*.

**Hemorrhagic Diathesis with Anticoagulant in Blood.**—Soulier and Burstein of Paris say that the American literature records 3 observations of the presence of an anticoagulant in the blood of patients with hemorrhagic diathesis. They report studies on the blood of a fourth patient, in whom hemorrhagic diathesis was associated with the presence of an anticoagulant. The patient, a man aged 21, appeared to have hemophilia. The blood and plasma were strongly anticlotting and had a long clotting time. The clotting time of recalcified citrated plasma was greatly delayed by removing the platelets. Freezing and thawing of platelet-rich plasma resulted in a decided shortening of the clotting time. Dilution of the plasma shortened the clotting, while the addition of calcium and storage of the plasma had no effect. The prolonged clotting time was not corrected by the addition of normal plasma or plasma fractions having antihemophilic activity. The prothrombin time was nearly normal. Small quantities of thromboplastin were effective in shortening the clotting time. The anticoagulant had no antithrombin activity. The "progressive" antithrombin and antifibrinolysin of the patient's plasma were normal. The anticoagulant acts during the first phase of coagulation by inhibiting an (plasma) *activator of prothrombin*.

## Canadian Medical Association Journal, Montreal

### 59:307-402 (Oct.) 1948

Anxiety States. D. E. Cameron.—p. 307.
The Scientific Outlook. W. F. Shaw.—p. 311.
Problems of the Anesthetist—Hazards in Use of Anesthetics. H. Farquharson.—p. 317.
New Synthetic Anti-Histamine Substance Derived from Phenothiazine (Phenergan, 3,277 R.P.). B. N. Halpern and Jean Hamburger. —p. 322.
Are There Nutritional Problems in Canada? L. B. Pett.—p. 326.
*Uses of Streptomycin in Urology. J. T. MacLean, E. Smith, L. Bower and F. Smith.—p. 328.
Pain Syndromes of Chest Muscles: Resemblance to Effort Angina and Myocardial Infarction, and Relief by Local Block. Janet Travell and S. H. Rinzler.—p. 333.
Care of Paraplegic Patients in General Hospitals. E. Rogers.—p. 338.
Surgical Treatment of Intravenous Clotting. H. M. Elder.—p. 343.
Asymptomatic Minimal Pulmonary Tuberculosis: Assessment of Status: Results of Supervision and Treatment. H. E. Burke and J. L. Parnell.—p. 348.
Acute Pancreatic Edema. W. E. Austin.—p. 354.
Congenital Atresia of Nasolachrymal Duct. N. W. Woywitka.—p. 357.
Present Status of Gold Therapy in Rheumatoid Arthritis. H. P. Wright.—p. 359.
Experiences in Periodic Health Work. H. M. Harrison.—p. 363.

**Oral Use of Streptomycin and Succinylsulfathiazole in Ureterointestinal Transplant.**—According to MacLean and his associates, Morton has shown that the floral content of the bowel can be reduced by the oral administration of streptomycin to an exceedingly low level, and in many cases no growth was obtained after administration on culture of the stool. To achieve this, preparation of the bowel is commenced one week prior to operation by giving succinylsulfathiazole orally. In addition, streptomycin, 4 Gm. daily, is given orally (in orange juice), commencing three days prior to operation. The authors have used this technic in 3 cases of ureterointestinal transplants in which 4 operations were done. Cultures taken from the bowel when it was opened at operation showed no growth in 1 case and very light growth of the usual flora on three occasions in the remaining 2 cases. The author believes that by preoperative preparation of the bowel with succinylsulfathiazole and streptomycin orally, the bacteriologic flora can be reduced to a nonpathogenic level at the time of operation. Contamination of the peritoneal cavity, if it should occur, is then of negligible significance.

## Cancer Research, Baltimore

### 8:1-48 (Jan.) 1948

Hodgkin's Disease—(Part I) 1832-1947. H. A. Hoster and Mary B. Dratman.—p. 1.

### 8:49-96 (Feb.) 1948

Hodgkin's Disease—(Part II) 1832-1947. H. A. Hoster and Mary B. Dratman.—p. 49.
Changes in Heat Coagulation of Plasma from Cancer Patients. M. M. Black, I. S. Kleiner and H. Bolker.—p. 79.
Incidence of Benzpyrene-Induced Sarcomas in Alloxan-Diabetic Rats. W. F. Dunning, M. R. Curtis and C. E. Friedgood.—p. 83.

## Delaware State Medical Journal, Wilmington

**20**:213-232 (Oct.) 1948

The County Medical Society and General Practitioner. H. S. Riggin.—p. 213.
Clinical Significance of Hemoptysis in Chronic Nontuberculous Diseases of Chest. G. A. Beatty.—p. 216.
*Patent Ductus Arteriosus: Report of Infected Case with Surgical Cure. A. H. Clagett Jr.—p. 223.
Case of Utero-Placental Apoplexy in Elderly Primagravida. O. N. Stern.—p. 226.
Vexed Relations Between Hospitals and Specialists. E. Hess.—p. 229.

**Patent Ductus Arteriosus.**—Clagett reports the case of a girl, aged 19, whose infected patent ductus arteriosus was successfully operated on. The lesion was infected with Streptococcus viridans. Five days after admission to the hospital intensive penicillin therapy was begun. Approximately 1,000,000 units was given daily for six days by continuous intramuscular drip in the anterior thigh muscles. Total dosage was 5,340,000 units. The temperature became normal twenty-four hours after the penicillin was begun. Carinamide, 3 Gm. every three hours by mouth, was started two days after penicillin was begun in an attempt to produce higher penicillin levels in the serum. After taking 52 Gm. of carinamide, the patient vomited once, retained the next dose, vomited the next dose, and then took two final doses of 3 Gm. each. She then had received a total dosage of 64 Gm. in forty-eight hours. The drug was discontinued at this time because of a temperature rise to 104.4 F. It was felt that this was a drug reaction. At operation a patent ductus arteriosus was found, was ligated and divided. A flap of free pleura was sutured between the two ends of the divided ductus. Penicillin was continued postoperatively, 100,000 units every two hours (intramuscularly) for six days and then 30,000 units every three hours for two days. This patient has been followed over one year and has been asymptomatic and afebrile.

## Endocrinology, Springfield, Ill.

**43**:193-274 (Oct.) 1948. **Partial Index**

Effects of Estrogen on Mammary Structure of Adrenalectomized and Thiouracil Castrate Rats. R. F. Johnston and J. F. Smithcors.—p. 193.
Further Study of Essentiality of Adrenal Cortex in Mediating the Metabolic Effects of Adrenocorticotrophic Hormone. D. J. Ingle, Mildred C. Prestrud and Choh Hao Li.—p. 202.
Alteration of Estrual Cycle in Sheep by Use of Progesterone and Its Effect Upon Subsequent Ovulation and Fertility. R. H. Dutt and L. E. Casida.—p. 208.
Effect of Growth Hormone on Nitrogen Excretion and Body Weight of Adult Female Rats. J. E. Whitney, L. L. Bennett, Choh Hao Li and H. M. Evans.—p. 237.
Effects of Pituitary Adrenocorticotropic Hormone on Intact Rat, with Special Reference to Cytochemical Changes in Adrenal Cortex. Grace E. Bergner and Helen W. Deane.—p. 240.

## Georgia Medical Association Journal, Atlanta

**37**:369-402 (Oct.) 1948

Some of Georgia's Medical Problems. E. H. Greene.—p. 369.
*Streptomycin in Therapy of Granuloma Inguinale: Report of 100 Cases. C. H. Chen, R. B. Greenblatt and R. B. Dienst.—p. 373.
Streptomycin and Tuberculosis. C. C. Aven and J. S. Cruise.—p. 376.
*Treatment of Influenzal Meningitis with Streptomycin and Sulfadiazine. J. Yampolsky and J. P. Jones.—p. 379.
Severe Pyelonephritis Complicating Pregnancy: Report of Case. M. K. Bailey and C. A. Fort.—p. 382.
Cancer Commission, Medical Association of Georgia. J. C. Norris.—p. 387.

**Streptomycin in Granuloma Inguinale.**—Chen and his co-workers treated 100 patients, 65 men and 35 women, with laboratory proved granuloma inguinale, by intramuscular administration of streptomycin dissolved in distilled water containing 20 to 30 per cent of a 1 per cent solution of procaine hydrochloride. Sixty-seven of the patients had been treated before with some forms of antimonial preparations, but had not been benefited permanently or at all. The remaining 33 patients had not received any specific medication prior to admission. All the patients were arbitrarily divided into three groups regardless of their duration of disease and previous medication. Thirty-two patients were treated six to sixty-two days with a daily dose of 0.3 to 2.0 Gm. of streptomycin. Sixty-one patients were treated with a uniform dosage schedule of 4 Gm. per day for five days. The remaining 7 patients, who had extensive lesions, were treated with 4 Gm. per day for six to ten days. In all cases the antibiotic was administered in divided doses every four hours. Results showed that streptomycin so far constitutes the best treatment for granuloma inguinale. It is effective even in small dosage, though recurrences are more frequent and there is danger of creating streptomycin resistance, as in 2 of the authors' cases. The optimum daily dosage probably is 4 Gm. in divided doses. For average cases of granuloma inguinale a five day course is generally sufficient to effect a cure with disappearance of Donovan bodies and complete healing of the lesions with depigmented cicatrization in one to two weeks. For patients with extensive lesions or in whom clinical and microscopic responses are not so prompt, a ten day course is probably to be preferred.

**Streptomycin and Sulfadiazine in Influenzal Meningitis.**—Yampolsky and Jones treated a great number of patients, mostly children below 3 years of age, who had influenzal meningitis, due to Hemophilus in 95 per cent of the cases, with sulfadiazine and streptomycin alone, eliminating Alexander's rabbit serum. Sulfadiazine was given in a dose of 1½ grains per pound (0.22 Gm. per kilogram) of body weight per day for approximately seventeen days. If the patient could not take the drug by mouth it was given subcutaneously. One gram of streptomycin dissolved in 8 cc. of water was administered daily in eight divided doses of 1 cc. every three hours by intramuscular route for four to seven days, according to the seriousness of the illness. At the same time 30 mg. of the drug was given intrathecally for the same number of days. Except where spinal block was present and where streptomycin had to be given intrathecally, both by the lumbar route and through the cistern, the patients usually recovered and patients, no matter how young, got well without residual symptoms.

## Illinois Medical Journal, Chicago

**94**:209-276 (Oct.) 1948

*Treatment of Influenzal Meningitis. A. Levinson.—p. 227.
Management of Labor. L. A. Calkins.—p. 231.
*Studies in Oral Administration of Penicillin. III. Oral Penicillin in Treatment of Pneumococcic Pneumonia. I. F. Volini, W. Hoffman, J. R. Hughes and J. R. Peffer.—p. 235.
Routine Technic of a Typical Rhinoplasty. S. Fomon and V. R. Syracuse.—p. 242.
Role of Developmental Diagnosis in Pediatrics. Catherine S. Amatruda.—p. 251.
Constitutional Emotional and Cultural Factors Producing Mental Deficiency. H. Neuer.—p. 255.

**Influenzal Meningitis.**—At the Cook County Hospital, during the period of 1942 to 1948 Levinson treated 60 children with influenzal meningitis. Six children given sulfonamide compounds alone died. Of 12 patients given sulfonamide compounds and serum 6 died. Of 9 patients given sulfonamide compounds, serum and penicillin only 1 died. One of 2 patients who were given sulfonamide compounds and penicillin died. Twelve patients received streptomycin, sulfonamide compounds, penicillin and serum, and 3 of them died. There was not a single fatal case in 17 patients who were treated with streptomycin and sulfadiazine. Two patients given streptomycin alone survived. Three hundred thousand units of streptomycin every six hours by intramuscular route for seven days proved of definite value in the treatment of influenzal meningitis and should replace all other types of treatment, but whether it can be used alone or should be combined with sulfonamide compounds time will tell. At present the author advises treating all patients with streptomycin combined with sulfadiazine in spite of the fact that 2 patients recovered on streptomycin alone. Sulfadiazine may be given intravenously beginning with an average of 3 grains of sodium sulfadiazine per pound (0.44 Gm. per kilogram) of body weight in twenty-four hours. It should be reduced gradually to 1 grain per pound (0.15 Gm. per kilogram) and as soon as possible should be given by mouth. Treatment with sulfadiazine should be continued for five days after the streptomycin is discontinued.

**Oral Penicillin in Pneumococcic Pneumonia.**—Volini and his co-workers treated 48 patients, 31 aged less than 50 and 17 aged over 50, who had the severe type of pneumonia, with penicillin by mouth. A primary dose of 200,000 units was given shortly after admission to the hospital, and one tablet containing 100,000 units was then administered every three hours day and night. The average total dose was 4,410,000 units, and the average duration of treatment was 5.8 days. Adequate therapeutic levels against pneumococci were demonstrated by penicillin assay of the blood. No attention was paid to the time relationship of penicillin administration to food intake. Specific buffering agents were not employed. There were 3 deaths in this series, 6.3 per cent in all and in the typed pneumococcic group 7.6 per cent. This is much less than the total death rate reported in patients with pneumonia who were treated with sulfathiazole, sulfadiazine and sulfamerazine. The major deterrent to oral penicillin therapy in the indicated dosage is the cost of this medication. The severity of the infection has been observed to have slight relation to the dosage of the drug required, providing therapeutic blood levels are maintained. The sensitivity of the pneumococcus to penicillin is marked and is the determining factor in dosage. Bacteremia responds to the dosages advised. Complications such as meningitis, empyema and acute bacterial endocarditis are refractory to almost any dosage and usually require local or topical administration. Atypical pneumonias should be given therapy like that for pneumonias of pneumococcic causation. The oral treatment of pneumonia by penicillin in the dosage and by the methods described proved as satisfactory as, if not superior to, treatment with sulfonamide compounds and almost the equal of parenteral penicillin treatment.

## Iowa State Medical Society Journal, Des Moines

### 38:435-466 (Oct.) 1948

Relationship Between Ocular Disorders and Thyroid Dysfunction. A. E. Braley.—p. 435.
Factors in Development and Growth of Children's Personalities. C. C. Graves.—p. 437.
Abdominal Surgery in Childhood. M. T. Bates.—p. 439.
Rhinoplastic Surgery—Some General Considerations. W. C. Huffman and D. M. Lierle.—p. 443.
Rupture of Liver Abscess into Hepatic Vein Causing Sudden Death: Report of Case. C. A. Jacobs, J. S. St. Onge, A. C. Starry and M. P. Summers.—p. 447.

### 38:467-508 (Nov.) 1948

Uses and Limitations of Streptomycin in Tuberculosis. K. H. Pfuetze and Marjorie M. Pyle.—p. 467.
Chemotherapeutic Agents in General Surgery. F. R. Peterson.—p. 471.
Antibiotics in Internal Medicine. E. L. DeGowin.—p. 474.
Use of Antibiotics in Treatment of More Common Urinary Tract Infections. R. H. Flocks.—p. 477.
Cancer of Left Side of Colon. G. C. Blome.—p. 479.
Business Side of Medicine: Train Your Office Staff. V. F. Nellis. —p. 481.

## Journal of Bone and Joint Surgery, Boston

### 30-A:541-804 (July) 1948. Partial Index

Hamstring-Tendon Transplantation for Relief of Quadriceps Femoris Paralysis in Residual Poliomyelitis: Follow-Up Study of 134 Cases. J. R. Schwartzmann and C. H. Crego Jr.—p. 541.
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Muscular Torticollis. F. A. Chandler.—p. 566.
Bone and Cartilage Debris in Synovial Membrane: Its Significance in Early Diagnosis of Neuro-Arthropathy. T. Horwitz.—p. 579.
*Bone and Joint Changes in Hemophilia: with Report of Cases of So-Called Hemophilic Pseudotumor. R. K. Ghormley and R. S. Clegg. —p. 589.
Coxa Plana. M. B. Howorth.—p. 601.
Experimental Intervertebral-Disk Lesions. J. A. Key and L. T. Ford. —p. 621.
Aseptic Necrosis in Gaucher's Disease. A. M. Arkin and A. J. Schein. —p. 631.
Coexisting Multiple Myeloma and Paget's Disease of Bone Treated with Stilbamidine. C. Reich and A. E. Brodsky.—p. 642.
*Cup Arthroplasty of Hip. W. H. Bickel and F. S. Babb.—p. 647.
*Evaluation of Penicillin Therapy in Acute Hematogenous Osteomyelitis. W. A. Altemeier and C. L. Wadsworth.—p. 657.
Acute Hematogenous Osteomyelitis: Study of Treatment. I. W. Nachlas and H. R. Markheim.—p. 673.
Normal Flexibility According to Age Groups. H. O. Kendall and Florence P. Kendall.—p. 690.
Evaluation of Certain Non-Operative Methods Used in Treatment of Cerebral Palsy. H. E. Hipps.—p. 695.
Fracture-Dislocation of Hip Joint: Nature of Traumatic Lesion, Treatment, Late Complications, and End Results. M. R. Urist.—p. 699.
Fractures of Talus. M. B. Kleiger.—p. 735.
Study to Determine Angle of Anteversion of Neck of Femur. P. C. Kingsley and K. L. Olmstead.—p. 745.
Reconstruction of the Elbow Joint. E. Parnall.—p. 752.

**Bone and Joint Changes in Hemophilia.**—Ghormley and Clegg say that in a series of 76 patients with hemophilia examined at the Mayo Clinic, 44 showed evidence of pathologic changes in the bones or joints. Weight-bearing joints were involved more frequently than non-weight-bearing joints, and the knee was involved about twice as often as any other joint. Ten of the 44 patients with hemarthrosis had single joints involved, while the other 34 had multiple joints involved. The authors report the histories of 6 patients with unusual bone lesions. In 4 the femur was involved, in 1 the thumb and in 1 the olecranon. These 6 cases seem to be examples of the so-called hemophilic pseudotumor. It was impossible to determine whether these hematomas were extensions of the hemorrhage from a neighboring joint or were subperiosteal or intramedullary in their origin. The case of the physician, which was followed over the longest period, seems to indicate that the hemorrhages were intramuscular and subperiosteal and caused destruction of the bone more by pressure erosion than by any other action. It is impossible to state whether or not there may be any "chemical effect," as postulated by Reinecke and Wohlwill. It would seem reasonable to conclude that these pseudotumors may arise, first, from hemorrhages originating in the joint, extending along the bone to produce pressure erosion; second, from subperiosteal hemorrhages, which first lead to formation of new bone and later to absorption and destruction of bone, and, third, from cortical or medullary hemorrhage, which may lead to cystic changes and later may destroy the bone or lead to fracture and further hemorrhage. It is important to be able to recognize the condition early enough so that the destructive changes may be kept under control.

**Cup Arthroplasty of Hip.**—Bickel and Babb say that a total of 274 hips in 233 patients were subjected to cup arthroplasty at the Mayo Clinic between 1939 and 1945, and a complete follow-up of this group has now been made. Patients who were advised to have cup arthroplasty were having sufficient pain so that they demanded operative intervention for its relief. Many patients who felt that they were having sufficient distress to warrant an operation were advised to pursue conservative treatment. This consisted in limited activity, reduction of weight, use of a cane or crutch, physical therapy and the taking of acetylsalicylic acid. Patients who had unilateral disease of the hip and whose occupations required heavy manual labor were advised to have arthrodesis of the hip. For cup arthroplasty the authors employed mainly the technic advocated by Smith-Petersen. When the acetabulum was too shallow for the cup, it was either reamed out or supplemented by a shelf to allow room for a freely movable cup. In cases in which ankylosis was nearly complete and a deep acetabulum was present, a portion of the head of the femur was left in the acetabulum to make it more shallow. The result was considered to be very good when the patient had no pain, could walk up and down stairs, tie his shoes and walk without assistance and without a noticeable limp. A good result was considered when the patient had little or no pain, could walk up and down stairs and could walk without assistance or with the help of a cane. Patients were considered to have a fair result when they were satisfied that improvement had been obtained and pain was less severe than before operation. The poor results were those in which the condition was not improved. Results were poor in slightly more than a fourth of the patients. The greatest percentage of good and very good results were obtained among patients of middle age, with a tapering off in the younger and older ages. The females did slightly better than the males, probably because the males use their hips for heavier work than do females. The authors say that those opposed to cup arthroplasty will focus their attention on the percentage of poor results. It must be remembered, however, that the patients were severely disabled before operation and that the percentage of salvaged persons far outweighs the percentage of those who have been made no better. Vitallium cup arthroplasty of the hip is a procedure which offers relief from pain, increased motion and correction of deformity to many patients.

**Penicillin Therapy in Acute Hematogenous Osteomyelitis.**—During the past four years Altemeier and Wadsworth studied 71 cases of acute hematogenous osteomyelitis in which treatment with penicillin was employed. Recognition of the disease must be on the basis of clinical signs and symptoms, without help from the roentgen ray, at the time when penicillin therapy can be expected to give excellent results in the majority of instances. In case of doubt, penicillin therapy should be started and continued until a diagnosis has been made. A dose of at least 20,000 units of penicillin should be given intramuscularly or intravenously, and repeated every two or three hours for at least seven days after the signs of infections are well under control. In severe infections, doses of 50,000 to 100,000 units may be given at the same interval until a clinical response has been obtained. A total dosage of at least 2,000,000 or 3,000,000 units, administered over a period of three or more weeks, seems adequate in most instances. Emergency surgical intervention is usually unnecessary, and conservative surgical procedures may be postponed until the infection has been controlled. However, large soft-tissue abscesses should be incised and drained early. During the acute phase of the infection, immobilization of the involved area is recommended for at least three weeks. Further immobilization is indicated in instances in which decalcification and rarefaction of the bone become considerable. Supportive therapy with blood transfusions, fluids, electrolytes and oxygen is indicated. Serial roentgenograms are recommended at intervals of one week during the early stages of the disease and at intervals of one month during later phases. The immediate results of penicillin therapy were striking. All but 1 of the 71 patients recovered; in the 1 exception, the patient was admitted to the hospital in a moribund condition. The return to function of the extremity was much more rapid than with previous forms of treatment. The results of penicillin therapy seemed to vary with the duration of the disease at the time the treatment was begun, with the dosage used and with the severity of the infection.

## Journal of Clin. Endocrinology Springfield, Ill.

### 8:813-894 (Oct.) 1948

*Use of Radioiodine in Treatment of Exophthalmic Goiter. S. F. Haines, F. R. Keating Jr., Marschelle H. Power and others.—p. 813.
Effect of Total Thyroidectomy on Function of Metastatic Thyroid Cancer. R. W. Rawson, L. D. Marinelli, B. N. Skanse and others. —p. 826.
Relationship of Hyperthyroidism to Myasthenia Gravis. D. McEachern and J. L. Parnell.—p. 842.
Androgens and Renal Function. Effect of Testosterone Propionate in Uremia Due to Cholera. E. Henderson, H. Seneca, Girgis Abd El Messih and M. Weinberg.—p. 851.
Propylthiouracil in Treatment of Toxic Goiter. W. S. Reveno.—p. 866.
*Suppression of Lactation with Ethinyl Estradiol. D. B. Gershenfeld and I. K. Perlmutter.—p. 875.
Comparative Effect of Synthetic Estrogenic Substances on Postpartum Breast. J. C. Dunlap and A. W. Diddle.—p. 880.

**Radioiodine in Exophthalmic Goiter.**—Haines and his co-workers treated 40 patients with exophthalmic goiter, 13 men and 27 women between the ages of 30 and 73 years, with radioiodine. Twenty-eight of the patients had recurrent exophthalmic goiter and from one to four attempts had been made to control the disease by surgical resection. Unilateral paralysis of the vocal cord was present in some of the patients. Seventeen patients had serious heart disease. Twenty-seven patients obtained good results, 8 fair results and 5 poor results from a single dose of $I^{131}$. Patients who obtained good results received an average dose of 242 microcuries per gram of thyroid tissue; those who obtained fair results, 239 microcuries per gram, and those who had poor results, 151 microcuries per gram. It would seem that an average dose of more than 200 microcuries per gram of thyroid tissue should be tried in cases in which an attempt is made to control the disease with a single dose. It is apparent that some patients treated this way will need a second dose of $I^{131}$ to control the disease. Some patients have needed much less than 200 microcuries per gram of thyroid tissue and doses considerably larger have failed to bring the disease of others under control. This suggests that there may be great individual variability in the sensitivity of different thyroid glands to radiation. The incidence of both myxedema and of recurrence of exophthalmic goiter after treatment was much higher in this series of patients treated with $I^{131}$ than among patients treated surgically. Much more experience is needed before one can have confidence in the accuracy of estimated doses. Thus far no serious reactions were noted by any of the patients treated with $I^{131}$.

**Effect of Estrogen on Lactation.**—Gershenfeld and Perlmutter report 501 women who were delivered at the Newark Beth Israel Hospital and who did not nurse. In 238 of these women, lactation was suppressed by administering 1.5 mg. of ethinyl estradiol daily in three equally divided amounts; this regimen was started on the day following delivery and was continued for the duration of the hospital stay, which varied from six to nine days. One hundred and twenty-eight nonnursing mothers formed a control series. In them the subsequent pain and engorgement of the mammary glands were treated by the administration of 200 mg. of camphor monobromate capsules four times daily, limitation of fluids, saline purgation and tight breast binding. During the hospital stay of the puerperal women pain and engorgement in the breast were most effectively relieved in those who received ethinyl estradiol, whereas the camphor regimen with other supportive therapy was highly ineffectual during the same period. There was no increase in the amount of blood in the lochia while under this estrogen medication and the number of instances of recognizable withdrawal bleeding was so small as to be negligible. On release from the hospital the women who were given ethinyl estradiol showed the highest percentage of continued difficulty at home with free leakage of milk, breast engorgement and pain, as compared with that of the group treated with camphor medication and supportive therapy, and even with that of the group of 101 nonnursing mothers who did not receive any treatment during their hospital stay. Difficulties experienced by the nonnursing mothers after omission of ethinyl estradiol could be reduced to a minimum if this medication were available to them after leaving the hospital. When it was not available, the regimen of camphor with supportive treatment appeared to be more successful in this respect only.

## Journal of Immunology, Baltimore

### 60:181-302 (Oct.) 1948

*Cholera Immunization. E. Singer, S. H. Wei and S. H. Hoa.—p. 181.
Studies in Dysentery Vaccination. IV. Primary Vaccination in Children with Monovalent Vaccines of Shigella. M. L. Cooper, J. Tepper and Helen M. Keller.—p. 189.
Quantitative Studies of Complement Fixation. II. Fixation of Complement in Reaction Between Type III Pneumococcus Specific Polysaccharide and Homologous Antibody. A. G. Osler, M. M. Mayer and M. Heidelberger.—p. 205.
Effect of Certain Enzyme Inhibitors on Activity and Growth of Psittacosis Virus. T. E. Burney and O. J. Bolub.—p. 213.
Serologic Relationships Between Five Cultured Strains of Supposed T. Pallidum (Noguchi, Kroo, Nichols, Reiter and Kazan) and Two Strains of Mouth Treponemata. H. Eagle and F. G. Germuth Jr. —p. 223.
Effect of Roentgen Irradiation on Antibody Formation in Rabbits. C. G. Craddock Jr. and J. S. Lawrence.—p. 241.
Immunochemical Studies on Tobacco Mosaic Virus. V. Serologic Relationship to Aucuba and J14D1 Strains. S. Malkiel.—p. 255.
Inhibition of Anti-Trypanosomal Activity of Arsenoso Compounds and Acridines by Esters and Amides of Organic Acids. W. L. Schleyer and R. J. Schnitzer.—p. 265.
Anaphylaxis in the Fish. N. B. Dreyer and J. W. King.—p. 277.
Use of Synthetic Medium as an in Vitro Test of Possible Chemotherapeutic Agents Against Gram-Negative Bacteria. Doris McKenzie, Marilyn Stadler, Jane Boothe and others.—p. 283.
Comparison of Mouse-Protective Tests and Chick-Protective Tests of Over 600 Chemicals Against Pasteurella Multocida. P. Little, G. DeMello, J. Tanzola and Y. Subbarow.—p. 295.
Mouse-Protective Test as Means of Determining Inhibitory Effect of Chemicals on Vibrio Cholera. P. Little and Y. Subbarow.—p. 299.

**Cholera Immunization.**—Singer and his associates compared the effectiveness of cholera vaccines which were prepared by different methods and tested the efficacy of different routes of administration. One strain of Vibrio cholerae which was isolated in Nanking during the epidemic of 1946 was used for the preparation of the vaccines. The strain was passed through 2 mice before being used for the preparation of vaccine. It was then grown on beef extract agar, the growth was washed in isotonic solution of sodium chloride and the suspension was passed through sterile filter paper. After that it was treated in one of various ways. Experiments were performed on different groups of men. From the result of this study the deduction may be drawn that heating to 56 C. and treatment with formaldehyde or alcohol produce vaccines of approximately equal potency as judged by the agglutinin-response of human subjects. Heating the vaccine to 100 C. seemed to increase its antigenicity, resulting in a better antibody response of the immunized men. Intracutaneous vaccination appeared to be more effective than subcutaneous injections; it was, however, in some instances followed by abscess formation, which, although insignificant in extent and not accompanied by discomfort, should be considered as contraindicating its general application.

## Journal of Infectious Diseases, Chicago

### 83:101-206 (Sept.-Oct.) 1948

Relationship of Biologic Defense Mechanisms to Antibiotic Activity of Penicillin: II. Modifying Influence of Penicillin on Histopathologic Pattern of Pneumococcus Infection in Normal and Debilitated Rats and Guinea Pigs. O. K. Skinsnes.—p. 101.
Studies on Antibacterial Polypeptide Extracted from Normal Tissues. W. L. Bloom and F. G. Blake.—p. 116.
Study of Bactericidal Activity in Vitro of Certain Glycols and Closely Related Compounds. O. H. Robertson, Elizabeth M. Appel, T. T. Puck and others.—p. 124.
Studies on Rheumatic Fever: Observations on Tonsillar Carriers of Hemolytic Streptococci; Effect of Tonsillectomy and Administration of Penicillin on Rheumatic and Nonrheumatic Fever Patients. H. G. Nelson and others.—p. 138.
Enteric Infections in Chimpanzees and Spider Monkeys with Special Reference to Sulfadiazine Resistant Shigella. Mildred M. Galton, R. B. Mitchell, G. Clark and A. H. Riesen.—p. 147.
Isolation of LCM Virus in an Effort to Adapt Poliomyelitis Virus to Rodents. H. A. Wenner.—p. 155.
Role of Spleen and Lymphoid-Macrophage System in Quinine Treatment of Gallinaceum Malaria: I. Acquired Immunity and Phagocytosis. W. H. Taliaferro.—p. 164.
Id.: II. Quinine Blood Levels. W. H. Taliaferro and F. E. Kelsey. —p. 181.
Mucolytic Enzyme Systems: I. Inhibition of Hyaluronidase by Serum in Poliomyelitis. D. Glick and F. Gollan.—p. 200.

## Journal-Lancet, Minneapolis

### 68:383-410 (Oct.) 1948

*Diagnosis and Pitfalls in Diagnosis of Poliomyelitis. A. F. Abt.—p. 383.
Abdominoperineal Proctosigmoidectomy: Its Complications and Sequelae. H. E. Bacon and G. D. Vaughan.—p. 389.
Treatment of Epilepsy. R. B. Tudor.—p. 391.
*Acute Poliomyelitis Treated with Thermal Antibody. B. Rappaport. —p. 395.
Neurologic Findings Among College Students. R. B. Clarke, T. Raphael and Martha R. Westerberg.—p. 398.
Management of the Allergic College Student. L. H. Criep and T. H. Aaron.—p. 401.

**Diagnosis of Poliomyelitis.**—Abt distinguishes three broad clinical types of acute anterior poliomyelitis; namely, abortive, nonparalytic and paralytic poliomyelitis. Neither a clinical nor a laboratory diagnosis can be made for the abortive type of poliomyelitis, because in this systemic phase of the disease a single symptom or combination of any symptoms may be the forerunner of any acute infection. There is no involvement of the central nervous system at this stage of the disease, and therefore lumbar puncture will reveal a normal spinal fluid. Nonparalytic poliomyelitis may be diagnosed from history, symptoms and clinical signs and spinal fluid changes even though no paresis or paralysis develops, particularly in those cases which occur during a season of the year in which poliomyelitis is known to be prevalent and during epidemic periods. Such cases were common in Illinois during the summer and fall of the 1947 season. This second stage of the disease involves the central nervous system, and in addition to the general symptoms of fever, headache, anorexia, nausea and vomiting there may be stiffness of the neck and of the back. The most indicative signs for diagnosis are the spine sign (ventral flexion) and the head drop. If both these signs are absent, a positive diagnosis will probably not be made. If one or both are present with characteristic spinal fluid changes, a positive diagnosis should be relatively easy. If paralysis occurs, it usually develops on the second or third day of this phase of the disease. Pain, diminution or loss of the deep reflexes and weakness or twitching of muscle groups may be premonitory signs of approaching paralysis. Only a rapid method for virus identification could positively indicate whether many of the cases seen in Illinois this fall were actually due to the poliomyelitis virus or to such other known viruses such as that of St. Louis encephalitis, equine encephalomyelitis, a different strain of poliomyelitis, or a new and unknown virus. Until a rapid method for virus culture is obtained, only a presumptive and not a positive diagnosis of such cases may be made.

**Thermal Antibody Treatment of Poliomyelitis.**—Rappaport treated 20 consecutive cases of acute poliomyelitis in 14 boys and 6 girls between the ages of 2½ and 16 years with thermal poliomyelitis antibody. It was given intramuscularly into the lateral aspect of the thigh. Eight patients received 15 cc. each, 2 received 22 cc. each, one received 25 cc., 8 received 30 cc. and 1 received 40 cc., the dose varying with the severity of the illness and somewhat with the size of the patient. Only 1 patient had a very painful local reaction accompanied by a generalized reaction with temperature up to 104 F.; 17 patients had only a local reaction of pain and 2 patients had no reaction or pain. Improvements were noted as follows: The 5 patients who had difficulty in swallowing could swallow normally again within twenty-four hours to five days after receiving the thermal antibody, and the 3 patients with respiratory difficulties could use their intercostal muscles much better within twenty-four hours to five days after the treatment. The pain in the extremities of 4 patients disappeared on the third to the sixth day after receiving the antibody. None of the patients treated with the thermal poliomyelitis antibody died and in only 1 patient did more paralysis develop after this treatment. The 19 surviving patients were free from pain sooner than the untreated and moved about actively in a short period of time. The solutions of antibody used in treatment were prepared by autoclaving suspensions in isotonic sodium chloride solution containing streptococcus isolated from cases of poliomyelitis for ninety-six hours without hydrogen peroxide, or for one to three hours after adding 1.5 per cent of hydrogen peroxide. In both types of preparation it was observed that the bacteria disintegrate, the toxic components are destroyed and substances resembling antibodies become demonstrable in the supernatant sodium chloride solution. This antibody would seem to have curative effects in poliomyelitis and in returning the patient to normal activity in a relatively short space of time.

## Journal of the Mount Sinai Hospital, New York

### 15:107-174 (Sept.-Oct.) 1948

Protein Needs in Surgery. R. Elman.—p. 107.
Discussion of Lesions of Pancreas Amenable to Surgery. A. O. Whipple. —p. 123.
Subtotal Gastrectomy in Treatment of Chronic Recurrent Pancreatitis. A. Richman and R. Colp.—p. 132.
Relationship of Pancreatic Duct Obstruction and Dilatation to Fat Necrosis of Pancreas. R. A. Nabatoff.—p. 139.
Insulin Resistance in Diabetic Ketosis. N. B. Kurnick and A. B. Scheibel.—p. 143.
Solitary Myeloma of Rib. A. H. Aufses.—p. 150.
Influence of 2-Hydroxystilbamidine on Course of Multiple Myeloma. I. Snapper.—p. 156.
Ergotamine Tartrate and "Two-Step" Exercise Electrocardiogram in Functional Cardiac Disturbance. A. M. Master, L. Pordy and J. Kolker.—p. 164.

## Journal of Nervous and Mental Disease, New York

### 108:271-360 (Oct.) 1948

Atypical Clinical Features of Acoustic Nerve Tumors. B. J. Alpers and F. M. Forster.—p. 271.
*Dissociation Between Pain and Temperature in Spinal Cord Lesions. I. C. Sherman and A. J. Arieff.—p. 285.
Nature of Affective and Paranoid Disorders During the Senium in Light of Electric Convulsive Therapy. A. Gallinek.—p. 293.
Healing Processes in Schizophrenia. P. Rubé.—p. 304.

**Dissociation Between Pain and Temperature in Spinal Cord Lesions.**—Sherman and Arieff point out that in most textbooks of neurology and neuroanatomy it is generally stated that the fibers of the lateral spinothalamic tract convey the sensations of pain and temperature, leaving the impression that both modalities are conveyed in the same tract and that they suffer simultaneously in disease. The diagnosis of hysteria at times had been erroneously attached to a patient who suffers only the loss of pain sensation with preservation of temperature sense and vice versa. These misunderstandings exist in spite of the fact that there are definite contributions in the literature to indicate that these modalities may be lost differentially by lesions in the spinal cord. The authors present 4 cases which represent instances of dissociation of pain and temperature sense in intramedullary and extramedullary spinal cord disease. In the first case, temperature sense was present but diminished in areas of analgesia in two separated dermatome areas as a result of syringomyelia. In the second case, there was loss of temperature sense in an area where pain sense was well preserved in an intramedullary lesion. Because of this one may postulate separate pathways for pain and temperature. The third case showed preservation of temperature with loss of pain in the presence of extramedullary compression. The fourth case shows loss of pain and cold perception with preservation of warmth perception as a result of an intramedullary lesion. The authors conclude that the functional anatomy of the spinothalamic tract is still not completely understood.

## Journal Pharmacology & Exper. Therap., Baltimore

94:85-214 (Oct.) 1948

Naphthoquinone Antimalarials. L. F. Fieser, F. C. Chang, W. G. Dauben and others.—p. 85.
Thyroxine-Like Activity of Chloro- and Bromo-Thyronine Derivatives. C. P. Leblond and B. Grad.—p. 125.
Enzymic Hydrolysis of Morphine Esters. S. Ellis.—p. 130.
Further Studies on Antifibrillatory Action of Coronary Dilator Drugs. K. I. Melville.—p. 136.
Pharmacologic Study of Ortho-Methoxy-beta-Phenyl-Isopropyl Methylamine Hydrochloride, and Thirteen Related Methoxy Analogues. B. E. Graham and M. H. Kuizenga.—p. 150.
Absorption and Elimination of Caronamide (4'-Carboxyphenylmethanesulfonanilide). K. H. Beyer, Elizabeth K. Tillson, H. F. Russo and others.—p. 167.
Comparison of One Dose Per Day with Six Doses Per Day of Quinine in Suppression of Lophurae Malaria in the Duck. E. H. Dearborn. p. 178.
Influence of Lung Distension Upon Response of Bronchioles to Epinephrine and to Histamine. K. I. Melville and H. Caplan.—p. 182.
Comparative Pharmacology of p-Fluorophenethylamine and p-Fluorophenethyl-Methylamine. D. F. Marsh.—p. 192.
Pharmacology of New Antihistamine, Beta-Pyrrolidine-Ethyl-Phenothiazine (Pyrrolazote). M. J. V. Brook, K. J. Olson, Marilyn T. Richmond and M. H. Kuizenga.—p. 197.
*Preliminary Pharmacologic Investigation of the Tannin Obtained from Pinus Caribaea, Morelet. F. W. Bope, Elizabeth M. Cranston and O. Gisvold.—p. 209.

**Tannin from Slash Pine.**—Because of the success of tannic acid method of treatment of burns, Bope and his co-workers decided to investigate a substance which might eliminate or at least decrease some of the objectionable properties of tannic acid, but at the same time maintain or even increase its favorable properties. The pharmacologic investigation of the tannin obtained from Pinus caribaea, Morelet, was suggested after a consideration of the properties of this natural tannin and its ability to react with proteins in a manner similar to tannic acid. This experimental work gives a comparison of the relative toxicities of the phlobatannin of Pinus caribaea and tannic acid and a comparison of the effects of these two tanning agents in the local treatment of burns. The phlobatannin used in this work was crude phlobatannin obtained by defatting the inner bark of the slash pine tree Pinus caribaea, Morelet, extracting with 95 per cent alcohol, and then removing the alcohol by vacuum distillation. Tannic acid, injected intraperitoneally into mice, caused necrosis of the liver, whereas phlobatannin produced a different type of liver injury, namely, diffuse hepatitis. Phlobatannin has approximately one sixth of the acute toxicity of tannic acid. In the local treatment of burns, solutions of phlobatannin and of tannic acid were about equal in respect to time required for the formation of a complete eschar over the burned area. However, the eschars formed with phlobatannin remained completely intact slightly longer, were less stiff and brittle and were lighter in color than those produced by tannic acid. This experimental work indicates that Pinus caribaea phlobatannin possesses the beneficial properties of tannic acid in the local therapy of burns, but is decidedly less toxic.

## Kansas Medical Society Journal, Topeka

**49:**405-448 (Oct.) 1948

*Prejudicial Practices in the Management of Eclampsia. W. E. Brown. —p. 405.
Treatment of Various Cardiac Emergencies Arising in Myocardial Infarction. H. W. Carle.—p. 410.
False Diverticula of Appendix. J. H. Hill.—p. 414.
Tuberculosis Case-Finding in College. R. I. Canuteson.—p. 416.

**Management of Eclampsia.**—Brown is of the opinion that eclampsia is the final clinical manifestation of a toxemic pregnancy. Its appearance suggests inattention on the part of the patient or her physician to obvious "storm warnings." Deaths from eclampsia seldom occur in patients receiving good prenatal care. The relegation of prenatal checkups to a nurse must be condemned. The regular recording of weight and blood pressure measurements and the critical interpretation of changes in these values are essential to the early detection of toxemia and the prevention of eclampsia. Any patient who gains more than 1 pound (453.6 Gm.) a week or 5 pounds (2,268 Gm.) a month, or whose diastolic blood pressure increases by more than 20 mm. of mercury, should be viewed with suspicion. The use of diets high in protein and low in salt largely eliminates the development of toxemia and eclampsia. Once eclampsia has supervened, individualization is essential. Deep sedation is necessary to control convulsions. Morphine, tribromoethanol and paraldehyde are suitable, the latter two avoiding an antidiuretic effect. Both extremes of dehydration and drowning are to be avoided. Fluid balance should be maintained by the infusion of 50 to 75 cc. of isotonic dextrose solution per hour. The interval induction of labor by the rupture of membranes will usually permit favorable termination of the pregnancy.

## Kentucky Medical Journal, Bowling Green

**46:**401-438 (Oct.) 1948

Intra-Ocular Hemorrhage in the Newborn. A. C. Poweleit and C. D. Townes.—p. 420.
*Rectal Shelf and Pararectal Masses with Case Report. W. L. Cooper. —p. 423.
Venous Thrombosis and Pulmonary Embolism. R. R. Crutcher.—p. 427.
Hernia. D. W. Barrow.—p. 432.

**46:**439-478 (Nov.) 1948

Some of the Pharmacists' Problems. H. J. Hafendorfer.—p. 453.
Multiphasic Aspects of Geriatrics. W. N. Lipscomb.—p. 454.
Tuberculous Meningitis. D. E. Clark Jr.—p. 461.
Peripheral Vascular Disease: Present Status. J. B. Floyd Jr.—p. 465.
Choice of Anesthesia in Treatment of Toxemic Patient. F. W. Hauser. —p. 467.

**Rectal Shelf and Pararectal Masses.**—According to Cooper, there is confusion concerning whether any mass felt anterior to the rectum and in the rectouterine or rectovesical space shall be called a rectal shelf or whether this term should be reserved only for cases in which there is a palpable ridge or ledgelike mass impinging against and attached to the anterior wall of the rectum and 4 to 10 cm. above the anus. Properly, the term "rectal shelf" has been employed to designate that condition in which a palpable mass impinging on or attached to the anterior rectal wall causes a ledge or shelf to be felt. Such a mass deserves serious evaluation because it may call attention to a lesion remote from the rectum. The mass may be confused with a primary carcinoma of the rectum and thus lead to an error in diagnosis and prognosis. A patient may consult a physician because of symptoms produced by the rectal shelf or a pararectal mass without relating any which result from the primary lesion, or the reverse situation may be encountered. The author reviews the literature with reference to rectal shelf and pararectal masses and presents a case report. The most common causes of pararectal masses among women are lesions of the genital system, and among men lesions of the gastrointestinal tract. When a rectal shelf or a pararectal mass is found a diligent search for the primary cause is imperative. A digital examination of the rectum and proctoscopic examination should be routine in cases of obscure malignant and inflammatory disease within the abdomen. Any suspected case of gastric carcinoma should have a digital examination of the rectum made in search of a rectal shelf or a pararectal mass. Hasty treatment or prognostic theories should not be entered into until a patient with a rectal shelf or a pararectal mass has been thoroughly studied. Not all pararectal masses or rectal shelves are caused by a malignant metastatic growth.

## Maine Medical Association Journal, Portland

**39:**247-274 (Sept.) 1948

The Field of Allergy. E. A. Brown.—p. 247.
Anoxic Electrocardiogram as Test for Early Coronary Sclerosis. S. Boyarsky.—p. 251.
Survey of Stillbirths and Neonatal Deaths at Maine General Hospital: 1947-1948. J. G. Ham.—p. 255.

**39:**275-302 (Oct.) 1948

Allergic Reaction to Penicillin. M. A. Chapin.—p. 275.
Kerosene Poisoning. H. C. Thacher and G. L. Brooks.—p. 277.
Urinary Retention. D. L. Anderson.—p. 279.
Pre-Anesthetic Medication. V. J. Moore and G. Clapperton.—p. 281.
Carcinoma of Thyroid Gland. W. A. Clapp.—p. 282.
Adenomycosis. D. A. Rock, R. M. Timberlake Jr. and I. I. Goodof. —p. 285.

## Michigan State Medical Society Journal, Lansing

### 47:1049-1160 (Oct.) 1948

Twenty-Five Years of Precipitation Studies in Syphilis 1923-1948. R. L. Kahn.—p. 1089.
Specificity of the Kahn Reaction. R. L. Kahn and Elizabeth M. McDermott.—p. 1095.
Interpretation of Serologic Tests for Syphilis. H. E. Cope.—p. 1096.
Treatment of Early Syphilis. H. L. Keim.—p. 1099.
Syphilis, Marriage and Public Health: Premarital Examination and Practicing Physician. J. A. Cowan.—p. 1103.
*Treatment of Syphilis in Pregnancy. S. F. Horne and A. C. Curtis.—p. 1106.
*Neurosyphilis: Comparison of Treatment Plans Using Penicillin and Combination of Penicillin and Malaria. A. C. Curtis and S. F. Horne.—p 1111.
Role of Penicillin in Gonorrhea. G. Sewell and P. T. Salchow.—p. 1116.
Chancroid, Lymphogranuloma Venereum and Granuloma Inguinale: Diagnosis and Treatment. L. W. Shaffer.—p. 1118.

**Treatment of Syphilis in Pregnancy.**—A review of the literature on the treatment of syphilis during pregnancy convinced Horne and Curtis that penicillin is superior to all other antisyphilitic drugs in the prevention of prenatal syphilis. With penicillin the results are equally good no matter what the duration of pregnancy at the time of treatment. A total dose of 3,600,000 units of soluble penicillin is recommended. This can be given as 40,000 units every three hours for ninety doses. Preliminary studies indicate that penicillin in peanut-oil-beeswax may be an adequate substitute for aqueous penicillin. If this preparation is used, it is suggested that the mother receive 600,000 units daily for ten days. Adequate serologic and clinical follow-up of the mother and child is imperative. Routine retreatment during ensuing pregnancies of the mothers previously treated with adequate amounts of penicillin is not recommended if the maternal serologic reaction becomes negative and remains negative. There is no evidence that abortions are induced by treatment with penicillin during pregnancy. Massive arsenotherapy is the treatment of choice in patients who do not tolerate penicillin.

**Penicillin and Malaria in Neurosyphilis.**—This report by Curtis and Horne concerns 223 patients treated for some type of neurosyphilis who have been observed for a minimum of one year subsequent to treatment. Of these 108 received only penicillin and 115 were given therapeutic malaria plus penicillin. Patients with asymptomatic neurosyphilis, meningovascular syphilis and tabes dorsalis responded as well to penicillin alone as they did to combined therapy. This is seen in both the clinical and spinal fluid picture. The two groups with paresis and taboparesis responded as well clinically to penicillin as to malaria and penicillin, but the latter method retains a slight superiority in producing improvement in the spinal fluid findings after two years of observation. The authors believe that a longer period of post-treatment observation is necessary before a final conclusion can be drawn regarding this group. The response to the combination of malaria and penicillin therapy seems to be more rapid, but all things considered, the long term result from penicillin therapy alone may be just as good. It certainly is less hazardous.

## Nebraska State Medical Journal, Lincoln

### 33:329-360 (Oct.) 1948

Marie-Strumpell Arthritis and the Undiagnosed Low Back Patient. L. D. Baker.—p. 331.
Some Aspects of Pyogenic Meningitis. J. E. Gonce Jr.—p. 338.
Calcium, Phosphorus, and Phosphatase Metabolism: Review of Series of Hospital Cases from University of Nebraska College of Medicine, Omaha, Nebraska. E. J. Kirk and D. R. Jackson.—p. 343.
*Ten Cases of Smallpox. H. H. Zinneman.—p. 347.

### 33:361-400 (Nov.) 1948

Chest and Shoulder Pain in Cardiovascular Disease. E. S. Orgain.—p. 365.
Cutaneous Manifestations of Diabetes Mellitus. S. A. M. Johnson.—p. 370.
Amebic Liver Abscess. J. R. Kleyla, W. J. Reedy and R. L. Egan.—p. 374.
Arterial Hypertension—Selection of Cases for Sympathectomy. E. E. Simmons and R. S. Long.—p. 378.
Sympathicoblastoma Arising from Peripheral Sympathetic System: Case Report. M. A. Rockwell and F. H. Tanner.—p. 384.

**Smallpox.**—Zinneman reviews observations on 10 soldiers who contracted smallpox during the initial occupation of Southern Korea. All of them had been vaccinated at least once since induction into the Army, but made the statement that the vaccinations resulted in little more than one would expect of an ordinary scratch in the skin. Only 2 of the patients were vaccinated during civilian life. One of them had a scar from a vaccination nine years previously. His was the lightest case on record, the only one whose life never seemed to be in danger in spite of the fact that his skin lesions were confluent. The second one had no vaccination scar and believed he had no "take" when he was vaccinated at high school age. Both of these men recovered. The period from the probable exposure to the onset of symptoms was in all cases within the described incubation time of from eight to fourteen days. Exposure was provided by contact with Korean natives. The 10 cases under discussion were of the most severe variety. The initial symptoms were high grade fever, persistent vomiting and severe pain in the upper part of the abdomen. Headache was next in frequency, and only 2 patients complained of backache, although the literature describes backaches as a frequent initial symptom. Six of the 10 cases were classified as purpura variolosa, the severest form of smallpox. All the patients died. The sooner purpuric symptoms became evident, the more severe the toxicity of the disease and the shorter the duration to the fatal end.

## New England Journal of Medicine, Boston

### 239:565-604 (Oct. 14) 1948

*Disseminated Lupus Erythematosus Occurring Among Student Nurses. L. F. Ayvazian and T. L. Badger.—p. 565.
Necrotic Lesions of Leg in Arteriosclerosis. E. A. Edwards.—p. 571.
Anion Exchange Resins in Treatment of Heartburn During Pregnancy. S. C. Kasdon.—p. 575.
*Preliminary Observations on Use of Human Arterial Grafts in Treatment of Certain Cardiovascular Defects. R. E. Gross, E. S. Hurwitt, A. H. Bill Jr. and E. C. Peirce II.—p. 578.
Blood and Its Derivatives. S. T. Gibson.—p. 579.
Coronary Arteriosclerosis, with Thrombosis. Myocardial Infarction of Left Ventricle. Acute Bacterial Endocarditis of Mitral Valve.—p. 589.
Carcinoma of Left Bronchus, with Extension into Mediastinum and Metastases to Cervical, Mediastinal and Abdominal Lymph Nodes, Liver and Right Kidney.—p. 592.

**Disseminated Lupus Erythematosus Among Nurses.**—A follow-up survey on 750 nurses who were trained at a large municipal hospital between 1932 and 1946 revealed to Ayvazian and Badger that 3 of 13 fatalities in this group resulted after disseminated lupus erythematosus, this disease being second only to tuberculosis (4 cases) as the major cause of death. The histories of the 3 patients with lupus erythematosus are presented. A search was made for the factor common to these 3 cases. In 1 the apparent onset of the process coincided with Dick toxin reactions. The rash that appeared on her arm at the site of the inoculation persisted for a year up to the time of death, gradually transforming into the lesions of lupus. In case 2 no such definite correlation could be demonstrated. If, however, the change in the blood Hinton reaction can be accepted as an early serologic alteration of disseminated lupus, it is noteworthy that this occurred shortly after a series of inoculations had been completed. In case 3 the typhoid vaccination might be considered an associated allergen. It was after exposure to sunlight less than three months later, however, that the cutaneous manifestations of lupus first appeared. Fourteen months after the injections the patient died of lupus, having progressed rapidly through the final stages of the disease. Thus there is a possibility that an allergen was present in each of these cases.

**Arterial Grafts in Cardiovascular Defects.**—In the laboratory for surgical research Gross and his associates removed sections of abdominal aorta from donor dogs and subsequently used them to replace sections of the abdominal aorta of recipient dogs. Sixty-three such grafts were made in three sets: Vessels were removed from donor animals and implanted within a few hours into recipient dogs; segments of aorta were frozen and kept for varying periods before being implanted, and arterial segments were preserved for varying periods by storage in special nutritive solutions just above freezing before being placed in recipient animals. On the basis of observations in these animal experiments, it was believed that a method of arterial preservations might be applicable for vessel grafting in human subjects. Segments of arteries obtained within a few hours from human beings who died in automobile accidents were collected under aseptic conditions and stored for use whenever the need for an arterial graft might arise in a patient. Nine such grafts were used to bridge gaps between the aortic system and the pulmonary artery when it was desired to establish an aorta-pulmonary artery shunt for alleviation of the cyanotic state of tetralogy of Fallot, and when it was impossible directly to anastomose vessels of the aortic and the pulmonary systems by the Blalock or the Potts technic. One of these patients died twelve days after operation, largely from the effects of dicumarol[5] therapy. A second died two days after operation from cardiac decompensation. The grafts in both cases were patent. In the 7 surviving patients the grafts were apparently carrying blood and have been in place from one to five months.

## New Jersey Medical Society Journal, Trenton

### **45:**469-518 (Oct.) 1948

Surgery in the Newborn. C. H. Evans.—p. 471.
Surgical Aspects of Cancer of Lung. H. A. Brodkin.—p. 474.
Ulcerative and Regional Colitis. J. F. Pessel.—p. 477.
Effect of Neurosurgical Procedures on Certain Psychiatric Disorders. A. Crandell.—p. 480.
Myelographic Studies with Pantopaque. F. P. Carrigan.—p. 484.
Early Diagnosis of Diabetes Mellitus. J. C. Fineberg.—p. 486.
Cerebral Palsy: Recent Advances in Diagnosis and Classification. S. Keats.—p. 491.
Spinal Analgesia in Obstetrics. I. R. Hayman and M. S. Joelson. —p. 494.
Acne Vulgaris. S. A. Klein.—p. 498.
Recognition and Management of Epileptic Syndromes. I. S. Ross. —p. 499.

## Northwest Medicine, Seattle

### ·**47:**617-696 (Sept.) 1948

The Psychiatrist and the Clergyman. D. W. Hastings.—p. 644.
Diagnosis of Operable Congenital Heart Lesions. M. Schwartz.—p. 647.
Surgical Treatment of Cardiovascular Anomalies. W. S. Conklin. —p. 653.
Present Status of Cardiolipin Antigen in Syphilis Serology. W. Levin. —p. 659.
Oxyurids in Appendix. H. D. Chipps.—p. 662.

### **47:**697-772 (Oct.) 1948

Unusual Experiences in Practice of Obstetrics and Gynecology in China. G. C. Schauffler.—p. 722.
Diagnosis and Therapy of Common External Diseases of the Eye. E. P. Burch.—p. 725.
Keratoplasty or Keratectomy? A. F. de Roetth Sr.—p. 728.
Hypotensive Action of Dibenamine in Glaucoma. L. Christensen, K. C. Swan, and J. Gould.—p. 791.
Bronchiectasis: Clinical Aspects and Treatment. G. F. Schneider. —p. 733.
Bronchography in Early Diagnosis of Bronchiectasis and Bronchogenic Carcinoma. J. K. Poppe.—p. 735.
*Chronic Megakaryocytic Myelosis (Agnogenic Myeloid Metaplasia). W. Ricker.—p. 737.
*Blood Volume Depletion in Chronically Ill Surgical Patient. S. T. Scudder, E. Speer and D. L. Custis.—p. 740.
Naphazoline (Privine) Hydrochloride Poisoning in Infancy. C. S. Meeker.—p. 743.
Black Hairy Tongue. G. C. Saunders.—p. 744.

**Chronic Megakaryocytic Myelosis.**—Ricker directs attention to the fact that the syndrome of chronic splenomegaly, weakness, leukemoid peripheral blood picture and myelofibrosis with osteosclerosis is described under a variety of terms. These include chronic nonleukemic myelosis, myeloid megakaryocytic hepatosplenomegaly, megakaryocytic nonleukemic myelosis and agnogenic myeloid metaplasia of the spleen. Ricker's is the seventy-seventh case to be reported. It concerned a man, aged 57. He was dyspneic and moderately cyanotic. Wheezy expiratory rales were heard. Examination of the abdomen revealed it to be distended by the spleen and by the liver. The patient failed suddenly, went into peripheral vascular collapse and died before blood studies could be performed. At necropsy the liver was enormously enlarged; the spleen likewise was enormous. Microscopically, the liver showed some necrosis. Sinusoids contained giant cells of megakaryocytic characteristics. Basic splenic architecture was unaltered, but extrafollicular parenchyma showed myeloid metaplasia, and there were numerous megakaryocytes scattered through this tissue. The reticulum of the lymphatic sinusoids also contained large numbers of megakaryocytes. The bones revealed osteosclerosis. The lesions were at first interpreted as Hodgkin's disease, but then the basic tissue was found to be myeloid in character and the giant cells proved to be megakaryocytes. The megakaryocyte is regarded as the sine qua non of this chronic myelosis. Confusion of the two forms of giant cells, megakaryocytes and Reed-Sternberg cells, as was done initially in this case, is understandable. Irradiation of the spleen and splenectomy have both been tried in numerous cases of this megakaryocytic myelosis, but they have no lasting effect and are contraindicated. The author is of the opinion that the process is probably malignant, an indolent myelogenous leukemia. The sudden death in this patient is unusual, because, whereas the final outcome of megakaryocytic myelosis is invariably fatal, it usually progresses slowly, survivals up to twenty years having been reported.

**Blood Volume Depletion in Surgical Cases.**—According to Scudder and his associates the chronically ill patient with loss of weight and debilitation has been recognized as a poor surgical risk. He is more susceptible to surgical shock, less able to tolerate a minimum of hemorrhage and more prone to have certain postoperative complications. He is notoriously intolerant of isotonic sodium chloride solution and frequently displays fluid and salt retention after such infusions. The term "chronic shock" has been suggested for this condition, and correlation has been shown to exist between increased susceptibility to shock and reduced circulating blood volume. The authors show that many clinicians are reluctant to accept the fact that only with the knowledge of the blood plasma volumes can the various blood constituents be described in their absolute values. This is reflected in the fact that few hospital laboratories are equipped for volume determination. The authors attempt to show that empiric judgment alone cannot be depended on in evaluating the level of a patient's circulating blood and plasma volume and that exact studies must be done as a guide to quantitative replacement of blood volume deficits. Much of the controversy as to whether the chronically ill, debilitated patients have a lowered blood volume stems from the difficulties involved in calculating a standard value in a patient in whom progressive loss of weight is involved. Such weight depletion is not associated with an actual reduction of the potential vascular bed. For this reason it has been found that blood volume deficits in depleted patients should be calculated on the basis of a standard for the usual weight prior to the illness. The concept of protein and hemoglobin masses in contradistinction to concentrations is stressed. The low protein and hemoglobin mass explains this type of patient's inability to tolerate surgery, especially his inability to lose even relatively small amounts of blood without suffering shock. Because the results of quantitative blood replacement have been so consistently satisfactory, the authors urge that the blood volume deficit be determined in all chronically ill patients for whom surgical treatment is contemplated.

## South Carolina Medical Assn. Journal, Florence

### **44:**297-324 (Sept.) 1948

Prevention and Treatment of Acute Cholecystitis. G. H. Bunch. —p. 297.
Clinical Consideration of Erythrocytic Sedimentation Rate. M. W. Beach, C. D. Conrad and J. R. Harvin.—p. 302.
Operative Treatment of Intestinal Obstruction. F. T. Wallace and E. M. Colvin.—p. 306.

### **44:**325-348 (Oct.) 1948

Calcareous Pancreatitis and Diabetes: Report of Case. F. M. Ball. —p. 325.
Hemorrhage Into Adenoma of Thyroid: Case Report. J. H. Wootters and J. K. Webb.—p. 329.
New Research Discoveries. W. Van Winkle Jr.—p. 330.

## Tennessee State Medical Assn. Journal, Nashville

### **41:**279-296 (Aug.) 1948

*Diaphragmatic Hernia.* B. R. Kirklin.—p. 279.
Use of Anticoagulants. F. B. Murphey Jr.—p. 285.
Breast Feeding. O. H. Wilson.—p. 292.
The Mote in Our Eye: A Plea to Organized Medicine: President's Message. H. E. Qualls.—p. 295.

### **41:**321-358 (Sept.) 1948

Some Notes on Newer Concepts of Transmission and Treatment of Scabies. R. N. Buchanan Jr.—p. 321.
Hysterectomy—Indications and Technic. J. C. Burch, H. T. Lavely Jr. and D. D. Wallace.—p. 329.
Preoperative Preparations and Postoperative Care of Aged. J. F. Hamilton.—p. 336.

### **41:**359-396 (Oct.) 1948

Memorial Address. C. R. Henry.—p. 359.
Diseases of Salivary Glands and Their Ducts. D. H. Anthony and D. F. Fisher.—p. 362.

## FOREIGN

An asterisk (*) before a title indicates that the article is abstracted. Single case reports and trials of new drugs are usually omitted.

### Annals of Tropical Medicine, Liverpool

#### 42:119-250 (Sept.) 1948. Partial Index

Experiments in Cross-Breeding Tsetse-Flies (Glossina Species). F. L. Vanderplank.—p. 131.
Malaria and Blackwater Fever in Macedonia and Thrace in Relation to DDT. H. Foy, Athena Kondi, C. Damkas and others.—p. 153.
*Fruit-Eating Bats and Paralytic Rabies in Trinidad. J. L. Pawan —p. 173.
Observations on Strain of *Leishmania Tropica* After Prolonged Cultivation: Notes on Infectivity and Immunity. S. Adler and A. Zuckerman.—p. 178.
Studies on Synthetic Antimalarial Drugs: XX. Blood Concentrations and Physiologic Distribution on Some Homologues of Paludrine in Relation to Their Antimalarial Activities. A. Spinks.—p. 190.
Role of Bacteria in Intestinal Amebiasis in Man. G. T. Stewart. —p. 198.
Sylvatic Plague in South Africa: History of Plague in Man, 1919-1943. D. H. S. Davis.—p. 207.
Activation of Latent Kala-Azar and Malaria by Battle Experience. N. L. Corkill.—p. 224.

**Fruit-Eating Bats and Rabies.**—Pawan says that as with blood-sucking vampire bats, so the saliva of fruit-eating Artibeus bats, though they may not manifest any evidence of rabies, may carry infection. Fruit-eating bats, when infected with rabies, may bite mammals, not necessarily with the object of obtaining blood for food, but on account of a change in habit through being rabid. In mammals so bitten rabies may develop. During the height of the 1929-1931 epidemic of rabies in man and animals in Trinidad, authentic accounts were given of bats flying from fruit trees and attacking animals and even man. The probability is that such bats were fruit eaters. While the destruction of the blood-feeding vampire remains the main objective in antirabies bat campaign, it should not be forgotten that fruit-eating bats, when rabid, may bite mammals, and measures for reducing their numbers should not be lessened. The average length of life of the Artibeus after artificial infection with rabies is 130 days.

### Archives of Disease in Childhood, London

#### 23:149-212 (Sept.) 1948

Milk: A European Child Health Problem. H. F. Helmholz.—p. 149.
*Complete Heart Block in Children: Report of 3 Cases Possibly Attributable to Measles. N. S. Clark.—p. 156.
Splenic Panhematopenia. S. van Creveld.—p. 163.
Nutritional State of Children with Chronic Rheumatic Heart Disease. J. Benn.—p. 171.
Observations on Metabolism of Potassium from Study of Renal Clearance. H. E. C. Wilson.—p. 176.
Erythema Exudativum Multiforme in Childhood. A. V. Neale.—p. 183.

**Heart Block in Children Possibly Attributable to Measles.**—According to Clark heart block is an uncommon condition in childhood. The 3 cases reported here are of interest, since in all 3 there is evidence that complete heart block developed either during or shortly after an attack of measles. One patient had frequent Stokes-Adams attacks and died two years after the onset of the heart block. The other 2 patients, brother and sister, have had no symptoms directly referable to the heart block and are alive and well nine months after the block developed. It is suggested that in all 3 cases the heart block is the result of measles, but the possibility that rheumatic carditis and some familial weakness of the conducting tissues may have played a part in the causation in 2 of the patients is admitted.

### British Journal of Venereal Diseases, London

#### 24:89-136 (Sept.) 1948

*Treatment of Neurosyphilis with Penicillin. J. P. Martin.—p. 89.
Gangrene of Toes in Syphilis. Description of Case with Critical Review of Literature. E. J. Moynahan.—p. 104.
Nonbacterial Infection of Urinary Tract. W. E. Coutts.—p. 109.

**Penicillin in Neurosyphilis.**—Martin reports 24 cases of neurosyphilis in which penicillin treatment was used. Observations on these cases convinced him that penicillin is sufficient in most cases of neurosyphilis. Whether it is adequate or not for the cases of more acute dementia paralytica this series does not show. If, with the possible exception of such cases, the patient can be kept under observation after treatment and penicillin repeated if necessary, malaria will seldom be called for, and the risk of it will seldom be justified. Even if penicillin does not render malaria unnecessary, it is a potent weapon and will make us much less dependent on malaria. The author considers his conclusions as tentative because longer observation is necessary.

### British Medical Journal, London

#### 2:669-700 (Oct. 9) 1948

Surgery of Congenital Heart Disease. M. Campbell.—p. 669.
*Large-Intestinal Colic Due to Sympathetic Deprivation: New Clinical Syndrome. H. Ogilvie.—p. 671.
Some Causes of Slight Cardiac Enlargement. R. Hartley.—p. 673.
Congenital Heart Disease Simulating Fetal Distress: Report of 2 Cases. A. O. Sankey.—p. 676.
Some Aspects of Morbidity Surveys. E. R. Bransby.—p. 678.
Epilepsy and Tetany. J. E. G. Pearson.—p. 680.

**Colic of Large Intestine Due to Sympathetic Deprivation.**—In each of the 2 cases reported by Ogilvie the symptoms so strongly suggested obstruction of the distal colon by a carcinoma that laparotomy was undertaken in spite of normal findings after a barium enema. In each case the operation disclosed a normal colon and extensive and entirely unsuspected malignant disease involving the region of the crura of the diaphragm and the celiac axis and semilunar ganglions. Since the author was unable to find previous reports of this condition he designates it as a new clinical syndrome. He believes that the symptoms and signs of colonic obstruction in these 2 cases occurring in the absence of organic disease of the colon itself can be explained in three ways: (1) that the tumor stimulated the parasympathetic supply to the colon; (2) that the tumor cells produced some substances stimulating peristalis, or (3) that the subdiaphragmatic growth had interrupted the sympathetic supply to the large intestine, so that the parasympathetic innervation, which in the distal colon comes from the second and third sacral nerves, was allowed to act unopposed. Of these three explanations the third alone is probable. In the 2 cases under discussion the malignant infiltration surrounded, and may well have put out of action or even destroyed, the splanchnic nerves, the semilunar ganglions and the celiac plexus. The vagi passed through the same invaded area and were equally liable to interruption—a fact that fits in with the observation that only that part of the bowel supplied by the caudal parasympathetic system gave clinical evidence of overaction. It may be objected that surgical interruption of the sympathetic nerves at the same site does not produce this effect and that it does abolish pain. The author replies to this objection that the interruption of nerve fibers by malignant infiltration may be selective, picking out the motor fibers before the sensory ones; that the sensory and motor fibers may not run together in all persons as they do in the majority, and that painful sensations, blocked in their normal pathways, may find others.

#### 2:701-730 (Oct. 16) 1948

*Inquiry into Effect of H 11 in Treatment of Malignant Disease: Report of Committee Appointed by Medical Research Council. G. E. Gask and others.—p. 701.
Deficiency of Vitamin A in University Students. Stella Doraiswami and J. Yudkin.—p. 708.
Dietary Intake of Class of Students. R. P. Cook.—p. 711.
Congenital Occlusion of Duodenum. S. Glaser.—p. 712.
Ureteric Calculus Causing Anuria. N. J. S. Nathan and C. Josephs. —p. 713.

#### 2:731-768 (Oct. 23) 1948

Significance of Proteins in Nutrition: Their Particular Importance During Convalescence. D. P. Cuthbertson.—p. 731.
Bronchial Carcinoma. R. C. Brock.—p. 737.
Primary Post-Partum Hemorrhage. J. B. Joyce and G. G. Lennon. —p. 740.
Review of Femoral Herniae with Special Reference to Recurrence Rate of Low Operation. A. G. Butters.—p. 743.
*Repair of Femoral Hernia by "Postage Stamp" Facial Graft.* H. A. Kidd.—p. 745.

**Effect of H 11 on Malignant Disease.**—The substance H 11 is an extract prepared from a concentrate of normal male urine. Reports have appeared indicating that the substance has an inhibitory action on malignant tissues in the human being, and may in certain cases lead to recovery from cancer. Advocates of the alleged remedy have said that responsible bodies, in particular the Medical Research Council, were withholding support and refusing to recognize work which marks an advance in the treatment of cancer. It was therefore decided that the Medical Research Council should appoint a special committee to collect the available evidence on which the claims for H 11 were based and to assess its value. The conclusions at which the committee has arrived after careful consideration are: 1. It has not been possible to deduce from an anlysis of the records that H 11 has any effect either on the rate of growth of cancer in man or on the clinical course of the disease. 2. So far as the experiments in mice carried out under its direction are concerned no inhibitory action by H 11 has been demonstrated.

## East African Medical Journal, Nairobi

### 25:299-332 (Aug.) 1948. Partial Index

Instance of Familial Congenital Heart Disease. A. J. Jex-Blake.—p 301.
*Cancer Among the Europeans in Kenya. (Cancer Studies: I). F. Piers.—p. 308.
*Medical Examination of 500 African Railway Workers. H. C. Trowell—p. 311.
Pathology of Central African Natives. Mulago Hospital Post Mortem Studies—VIII. J. N. P. Davies.—p. 322.

**Cancer Among Europeans in Kenya.**—The annual cancer morbidity of the European population of Kenya is approximately 1 per thousand. The proportion of carcinomas to sarcomas was 9.6 to 1. The most frequent sites of carcinoma are breast, skin, genital organs and alimentary canal, in order of frequency. Sarcoma takes the form of bone tumors in a third of all sarcomas.

**Examination of African Railway Workers.**—The 500 railway workers examined by Trowell were Africans. Nearly all employees looked thin, but it is rare to see a stout African. Little food is usually taken before leaving home in the morning. Protein deficiency is unlikely to occur among persons who, like the railway workers, eat cereals and from 1 to 2 pounds (454 to 907 Gm.) of meat weekly. However, those who, like many tribes in Uganda, rely on tubers and fruits such as plantains, potatoes, yams and cassava to satisfy hunger must consume a diet low in protein. Some of the results obtained in the clinical examination of the Uganda trainees of the Transportation School may reflect protein deficiency. Discussing vitamin deficiencies, the author gives particular attention to what are usually regarded as manifestations of vitamin A deficiency. Xerophthalmia and follicular keratosis were fairly frequent. Little evidence of riboflavin deficiency was seen, and clinical signs of pellagra, which would indicate nicotinic acid deficiency, were rare. No case of scurvy was found. Caries of the teeth is rare. Disorders due to vitamin D deficiency are absent. Fifteen, or 3 per cent, of the 500 employees were absent owing to alleged sickness, but it is impossible to give a true estimate of the amount of sickness and the precise causes of sickness. In the dispensary of a locomotive shed, minor respiratory infections predominated, and malaria and tropical diseases appeared to be of little importance. The epidemicity of malaria in Nairobi is such that railway employees seldom contract an attack except during epidemics. Nairobi is in the Kenya highlands. It is difficult to know how far the heavy incidence of helminths and intestinal protozoa is responsible for ill health.

## Journal of Mental Science, London

### 94:1-216 (Jan.) 1948. Partial Index

Twenty-First Maudsley Lecture: Nosophobia. J. A. Ryle.—p. 1.
Psychiatric Hypothesis and Practice. D. Henderson.—p. 18.
Psychiatric Disorders Among the Chronic Sick in Hospital. J. W. Affleck.—p. 33.
*Histopathologic Findings in General Paresis After Penicillin Treatment: Report on 4 Cases. R. H. F. Smith and V. de Morais.—p. 70.
Some Observations on Analytical Group Treatment of a Phobic Patient. F. Kräupl.—p. 77.
Pupillary Abnormalities in Schizophrenia and During Muscular Effort. P. R. A. May.—p. 89.
Method for Determining the Typicality of Personality Descriptions. (Applied to Assessing Noticed After-Effects of Prefrontal Leukotomy.) J. C. Raven.—p. 114.
Cerebral Physiology and Psychiatry. W. W. Gordon.—p. 118.
Normal Changes in Mental Abilities of Adults as Age Advances. G. A. Foulds and J. C. Raven.—p. 133.
Place of Psychiatry in Medicine. Noel Harris.—p. 143.

**Histopathologic Aspects of Dementia Paralytica After Penicillin.**—Smith and de Morais report 4 patients with dementia paralytica who died some weeks after parenteral penicillin treatment with total doses between 2,400,000 and 4,800,000 units. Two of the patients had improved clinically as well as serologically. Histologic examination of the brain in these 2 cases revealed inflammatory changes which were distinctly less intense than in untreated patients with dementia paralytica. The iron reaction was positive in all cases, but least intense in the 2 patients who had improved. The exacerbation of mental symptoms seen on the eighth day of treatment in 1 of these 2 patients was presumably a Herxheimer reaction. No spirochetes were found in any of the 4 brains. These findings closely resemble those found after treatment with malaria. The 2 cases in which there was no improvement were of the juvenile type. One of these patients, a woman aged 27, died thirty days from the start of treatment, after rapidly deteriorating both mentally and physically. The second patient, a youth of 20, showed no improvement during and after treatment with penicillin. He gradually deteriorated, both mentally and physically, and died sixty-six days from the start of treatment. The histologic studies in these 2 unimproved patients showed no mitigation of the inflammatory reaction. The 2 cases in which there was improvement suggest that treatment by penicillin alone is capable of influencing the pathologic progress of dementia paralytica.

## Journal of Physiology, Cambridge

### 107:383-526 (Sept.) 1948. Partial Index

*Assay of Nutritive Value of Protein by Its Effect on Liver Cytoplasm. Rosa M. Campbell and H. W. Kosterlitz.—p. 383.
Relative Humidity of Skin. R. H. Mole.—p. 399.
Excretion of Antidiuretic Substance by Kidney, After Electrical Stimulation of Neurohypophysis in Unanesthetized Rabbit. G. W. Harris.—p. 430.
Standardization of Secretin and Pancreozymin. J. H. Burn and Pamela Holton.—p. 449.
Measurement of Chloride Losses in Sweat. W. S. S. Ladell.—p. 465.
Activity of Duodenum. D. M. Douglas.—p. 472.
Afferent Nerve Fibers from Heart and Lungs in Cervical Vagus. D. Whitteridge.—p. 496.

**Dietary Protein and Liver Cytoplasm.**—Campbell and Kosterlitz describe a new method for the assay of the nutritive value of proteins in adult rats. It is based on the fact that the amount of labile cytoplasm present in the liver depends on the quantity and quality of dietary protein. Labile liver cytoplasm can be estimated by a determination of protein, phospholipin and nucleic acid or of the nonglycogen nonlipid liver solids. The quantity of nonglycogen nonlipid liver solids varies directly with the logarithm of the protein intake. The method can therefore be used at all levels of protein intake above minimum requirement. Regression equations are given for casein with normal and reduced caloric intake and for egg albumin. A reduction in caloric intake lowered the amount of nonglycogen nonlipid liver solids without altering the regression coefficient. Decreases of 20 and 47 per cent in caloric intake reduced the nutritive value of casein from 1 to 0.58 and 0.26 respectively. The effect of reducing caloric intake on the nutritive value of a protein is of considerable interest. Unless sufficient calories are supplied in the diet, part of the protein will be utilized for energy requirements. Nevertheless, labile nonglycogen nonlipid liver solids are still present in calory deficiency, although with decreasing food intake more and more protein nitrogen is required to obtain the same effect. That the regression coefficient is not significantly affected by the reduction in calories means that the response of the liver to increasing protein intake is only quantitatively but not qualitatively altered. Nutritive values of various proteins have been determined and found to be in fairly good agreement with those obtained by the older methods.

## Lancet, London

### 2:555-594 (Oct. 9) 1948

*Infantile Gastro-Enteritis Treated with Streptomycin by Mouth. Ursula James and I. R. H. Kramer.—p. 555.
Survival Period of Patients with Cerebral Hemorrhage Dying in Hospital. W. McI. Rose.—p. 561.
Determination of Hemoglobin: V. Precision of Colorimetric Methods. E. J. King, M. Gilchrist, I. D. P. Wootton and others.—p. 563.
Unexplained Thrombosis of Internal Carotid Artery. H. R. I. Wolfe.—p. 567.
Intestinal Obstruction from Fibrous Stricture: Following Strangulated Hernia. P. Konstam.—p. 569.

**Oral Administration of Streptomycin in Gastroenteritis.**—James and Kramer gave streptomycin by mouth to 30 children with gastroenteritis, in whose stools Proteus vulgaris was present. Four of these patients were selected for streptomycin therapy in the course of an outbreak of epidemic diarrhea among the newborn in a maternity hospital. Another group of 4 were selected among 12 children under 2 years of age, when an epidemic of gastroenteritis broke out in a residential nursery. The third group included cases of gastroenteritis in a children's unit including patients critically ill on admission and those not responding to routine treatment. The total dose of streptomycin was usually 2 Gm. administered over a period of seven days, 0.5 Gm. being given in the first twenty-four hours and 0.25 Gm. on each of the six subsequent days. The fraction of the daily dose that was given before each feeding was contained in 1 cc. Given in this way streptomycin was palatable and well tolerated, even where there had been copious vomiting. Streptomycin by mouth effectively eliminated Proteus vulgaris from the stools and was also effective in cases of gastroenteritis where no pathogenic organisms were found. Streptomycin by mouth shortened the course of gastroenteritis to a considerable extent, the usual time of discharge from hospital being nine to fourteen days after the start of treatment. The early administration of streptomycin by mouth in gastroenteritis may make it possible to omit a period of starvation and to give generous feeds throughout the illness. It is not expected that all types of gastroenteritis of unknown causation or those of virus origin will respond to streptomycin given by mouth. There is danger that pathogens remote from the intestine may be rendered streptomycin-resistant by the small amount of streptomycin that enters the blood stream.

### Medical Journal of Australia, Sydney

**2**:281-308 (Sept. 11) 1948

Continuing Conquest of Disease. F. M. Burnet.—p. 281.
*Death of Dr. Samuel Johnson.* F. W. Simpson.—p. 286.
Urinary Stress Incontinence in Women. A. R. H. Duggan.—p. 286.
Value of Physical Medicine in Modern Treatment. L. T. Wedlick.—p. 291.

### New Zealand Medical Journal, Wellington

**47**:297-420 (Aug.) 1948. **Partial Index**

Hypertension in New Zealand: Survey of 443 Consecutive Deaths in Dunedin Hospital. K. S. Alstad and F. H. Smirk.—p. 298.
Prolapsed Intervertebral Disk and the War Pensioner. D. M. Wilson.—p. 322.
Convulsive Therapy. Results and Complications in 400 cases. R. W. Medlicott.—p. 338.
Ligation of Abdominal Aorta. J. A. Jenkins.—p. 349.
*Case of Human Tuberculosis *Due to Avian Tubercle Bacilli.* Margaret K. Finlayson.—p. 362.
Stilbestrol and Prostatic Carcinoma. H. Gaudin.—p. 372.

**Human Tuberculosis Due to Avian Bacilli.**—According to Finlayson tuberculosis in human beings caused by the avian bacillus is rare. The case reported here was the first one observed in New Zealand. This avian bacillus was encountered in the course of routine typing of acid-fast bacilli isolated from human cases of extrapulmonary tuberculosis. The patient was a 14 year old girl with a swelling in the neck below the angle of the jaw. At operation an enlarged lymph node was removed. The organism was isolated on yolk-enriched egg medium. The organism emulsifies readily in water and saline solution. In this respect it is like avian and unlike human or bovine bacilli. Colonies of the bacillus show glycerophilism, and on mediums containing glycerol are pigmented (ochre), thus conforming to avian type. The organism is highly virulent for rabbits and chickens. It is capable of producing an active tuberculin that gave positive results with chickens which had been infected with an authentic strain of Mycobacterium avium.

### Proceedings of Royal Society of Medicine, London

**41**:569-652 (Sept.) 1948. **Partial Index**

Technic and Application of Electronarcosis. A. S. Paterson and W. L. Milligan.—p. 575.
Infra-Orbital Neuralgia. G. C. Knight.—p. 587.
Amyloid Disease and Rheumatoid Arthritis. L. C. Hill.—p. 607.
Effect of Blood Transfusion on Rheumatoid Arthritis. N. R. W. Simpson and D. H. Brooks.—p. 609.
Indications for Joint Manipulation. J. Bastow.—p. 615.
Lempert Fenestra Nov-Ovalis for Restoration of Practical Unaided Hearing in Clinical Otosclerosis: Its Present Status. J. Lempert.—p. 617.

### Anales de la Facultad de Medicina, Lima

**30**:283-438 (Oct.-Dec.) 1947. **Partial Index**

*Tropical Eosinophilia and Loeffler's Syndrome. Bertha Bouroncle.—p. 283.

**Loeffler's Syndrome.**—Bouroncle reports a clinical, hematologic and roentgenologic study of 9 cases of Loeffler's syndrome. She states that tropical eosinophilia, eosinophilic leukemoid syndrome and transient eosinophilic infiltration of lung (Loeffler) are clinical symptoms of the same infection, whose agent is unknown. The disease runs an early subacute course and a late benign course. There is an early phase with anemia in all of the cases, but in some a severe hypochromic macrocytic anemia is present. Bone marrow biopsy in these cases shows eosinophilic hyperplasia of adult forms and normoblastic erythropoietic hyperplasia. Anemia appears to be due to destruction of erythrocytes by a pathologic infectious agent. Infection stimulates the bone marrow to produce an abnormal number of eosinophils, with predominance of mature forms which infiltrate several organs, especially the liver. In the stage of toxic infection results of colloidal gold, of cephalin and cholesterol tests are positive, the albumin content of the blood is diminished, that of blood globulins is increased and the albumin-globulin ratio is low. In all cases total cholesterol in the blood serum is diminished in direct relation to the increased eosinophilia, whereas both the sedimentation rate of the erythrocytes and the fibrinogen content of the blood are increased. Diagnosis of tropical eosinophilia depends on ruling out pulmonary tuberculosis, cholelithiasis and appendicitis. The clinical diagnosis should be confirmed by serial hematologic and biochemical studies of the blood and by roentgen examination of the thorax. The author employed arsenical therapy in 3 of the cases without effect. Better results were obtained by administration of a well balanced diet and lipotropic substances which stimulate hepatic function.

### Deutsche medizinische Wochenschrift, Stuttgart

**73**:421-460 (Oct. 1) 1948. **Partial Index**

*Significance of Depth Reflexes as Surgical Trauma, Particularly for* Development of Pneumonia After Gastric Resection. E. Rehn.—p. 421.
Surgical Diseases of Pleura, Lung and Mediastinal Organs. T. Naegeli.—p. 425.
*Indication for Lobectomy in Bronchiectasis. E. Stutz.—p. 430.
*Treatment of Thrombophlebitis with Novocaine Block of Lumbar Sympathetic Trunk. K. J. Anselmino and H. Sauer.—p. 433.
Clinic Which *Realizes* Total Elimination of Surgical Embolisms. E. Rehn Jr.—p. 435.
Is Inflammation of Iliac Lymph Nodes a Separate Entity? E. Passarge.—p. 438.
Acute Inflammation of *Iliac Lymph Nodes During* Childhood. J. Brock.—p. 439.
Intra-Osseous Injection, a New Approach to Circulation. H. Junghanns.—p. 444.

**Lobectomy in Bronchiectasis.**—Stutz points out that, although the first surgical removal of a pulmonary lobe was carried out by Sauerbruch in 1915, it was rarely employed in Europe until after it had been further perfected by surgeons in the United States. The decision to perform lobectomy in patients with bronchiectasis requires exact knowledge of the localization and extent of bronchiectasis. Simple roentgenography is inadequate. Tomography and visualization of the bronchial tree by means of a contrast medium are required. Bronchography should be carried out before a lobectomy is undertaken. Bronchography gives information about the elasticity. These preoperative examinations are explained on the basis of 2 case histories. The patient's general condition must also be taken into consideration in deciding on the advisability of a lobectomy. Patients who have an advanced form of bronchiectasis rarely are good subjects for lobectomy. The surgical prognosis is better the shorter the duration of the bronchiectatic process. Age is also a decisive factor, patients under 40 having the best prognosis. Lobectomy represents a decisive advance in the therapy of bronchiectasis.

**Procaine Hydrochloride Block for Thrombophlebitis.**—Anselmino and Sauer cite observations of French and American investigators on the use of the procaine hydrochloride block in the treatment of thrombophlebitis and comment on the American concept of differentiation between thrombophlebitis and phlebothrombosis. They have performed sympathetic block in 68 patients with thrombophlebitis. In 46 of these patients, the block resulted either in complete cure or in such improvement that the patients were nearly free from complaints. In 15 patients with old thrombosis complicated by crural ulcer sympathetic block was followed by clearing of the wound surfaces and by the appearance of fresh granulations, and in 8 of the cases by subsequent rapid healing of the ulcers. Stasis and edema after thrombosis are not the result of mechanical closure of the vessel, but are due to ischemia resulting from spastic closure of the arterioles and of the venous collaterals. This spastic closure is elicited by means of a vasoconstrictor reflex originating in the wall of the diseased vessel and passing through the sympathetic trunk. Blockage of the lumbar sympathetic, as first suggested by Leriche, constitutes a decided advance in the treatment of thrombophlebitis, since it usually permanently interrupts the pathologic reflex.

## Maandschrift voor Kindergeneeskunde, Leyden

### **16**:211-250 (No. 7) 1948

*Two Cases of Tuberculous Meningitis. O. A. Driessen.—p. 211.
Streptomycin in Tuberculous Meningitis. A. G. Schoo.—p. 215.
*Eleven Cases of Tuberculous Meningitis Treated with Streptomycin. E. Gorter.—p. 217.
*Outcome of Tuberculous Meningitis Treated with Streptomycin in Children Clinic in 1947: 3 Cases. J. van Lookeren Campagne.—p. 237.
*Three Cases of Tuberculous Meningitis Treated with Streptomycin. Tj. Halbertsma.—p. 244.

**Two Cases of Tuberculous Meningitis.**—The first of the 2 cases of tuberculous meningitis presented by Driessen concerned a boy, aged 7. Treatment with streptomycin resulted in improvement for one month, but then the boy died. The second patient was a 10 year old girl, who presented all characteristic signs of tuberculous meningitis. She also showed some improvement in response to streptomycin treatment, but she died three months later.

**Streptomycin in Tuberculous Meningitis.**—Gorter reviews observations on 11 patients who were treated with streptomycin for tuberculous meningitis. The results were bad in the children under 2 years of age in that 4 of 5 died. Of 3 children, 2 of whom were 2 and one 2½ years of age, 1 died, another had a relapse after five months of treatment and the third has recovered but is deaf. In the children over 4 years of age, the results were good; all 3 of these children have recovered, but 1 is completely deaf. The streptomycin was administered by intrathecal injections, which were continued for five weeks to two months. This was combined with daily intramuscular injections, which were continued for at least six months. All except 1 of the children were treated from the onset of the disease.

**Outcome of Tuberculous Meningitis.**—Two of the 3 patients with tuberculous meningitis treated with streptomycin by van Lookeren Campagne survive.

**Three Cases of Tuberculous Meningitis.**—All of the 3 cases of tuberculous meningitis reviewed by Halbertsma were fatal despite treatment with streptomycin.

## Medizinische Klinik, Munich

### **43**:505-536 (Sept. 24) 1948. **Partial Index**

Clinical Observations on 210 Patients with Typhoid at Clinic in Göttingen. A. Frank.—p. 505.
Treatment of Pulmonary Abscess: Treatment with Sulfonamide and Penicillin. H. Malluche.—p. 509.
Late Results of Extirpation of Parathyroids in Osteitis Fibrosa Cystica Generalisata (Recklinghausen's Disease). K. F. Schmeer.—p. 517.
Infection of Aseptic Surgical Wounds. J. Gangler.—p. 519.
*Therapy in Cases of Oral Discharge of Ascarides. R. Schubert.—p. 521.
Abuse of Remedies that Cause Shrinkage of Nasal Mucosa. R. Mittermaier.—p. 522.

**Therapy for Oral Discharge of Ascarides.**—Schubert says that although ascarides are usually inactive, at the time of their sexual maturation and during treatment with anthelmintics they ball together or commence to migrate. If they wander in the oral direction, they may, by their efforts to penetrate into small openings, cause serious complications such as appendicitis, pancreatitis, cholangitis or gastroduodenal difficulties. They have been known to emerge from the mouth. This oral elimination has been observed more frequently in recent times, when infestation with ascarides has enormously increased. The examination of 700 children of school age in Tübingen revealed 33.8 per cent of infestation among those less than 10 years old and 25 per cent among those up to 20 years of age. Adults who cultivated small gardens had even higher infestation rates. In a rural hospital in the region of Hannover most of the patients who were subjected to gastrointestinal operations had ascarides, and nearly three fourths of these vomited ascarides. It has been found that anacidity or subacidity usually exists in the gastric juice of patients who eliminate ascarides by mouth and treatment with hydrochloric acid counteracts the oral elimination. If treatment with anthelmintics is preceded by the administration of hydrochloric acid, elimination of the worms will be by the natural anal route.

## Praxis, Bern

### **37**:745-764 (Oct. 7) 1948

Vomiting Caused by Esophago-Gastric Anomalies in Nurslings. M. Nicod. —p. 745.
*Treatment of Scarlet Fever by Penicillin. V. Vulliet-Baumann.—p. 755.
Treatment of Alimentary Anemia with Liver-Stomach Preparation. C. Valko.—p. 757.

**Penicillin in Scarlet Fever.**—Vulliet-Baumann says that at his isolation department penicillin treatment for scarlet fever was begun in March 1948 and since then 35 children and 2 adults have been treated. A penicillin preparation with prolonged action, a so-called depot penicillin, was administered by deep intramuscular injections. Without regard to age, 100,000 units of penicillin was given on arrival and this dose was repeated once every twenty-four hours during the following three days. The authors were favorably impressed by the results of treatment with penicillin. Its use favorably influences the initial angina and prevents the development of complications during convalescence. The early disappearance of the streptococci permits a reduction of the isolation period, which formerly was set by the cantonal health department at forty-two days. They now have ruled that the period of isolation for scarlet fever patients be governed by the same rules as that in force for diphtheria patients; that is, patients can be discharged from isolation after three negative smears have been obtained at intervals of several days. Although in the city of Geneva patients are freed from isolation as early as the tenth day, at the author's hospital in Lausanne patients are usually kept isolated for twenty-three days, because complications are feared during early convalescence. The possibility of a considerable reduction in the period of isolation is welcomed; it greatly reduces the expenses of hospitalization.

### **37**:765-780 (Oct. 14) 1948

*Statistical Contribution to Prognosis of Ulcer Disease. A. V. Beust. —p. 765.
Synthesis of Vitamin A. P. Ducommun.—p. 769.
Danger of Infection and Agriculture. O. Cuendet.—p. 770.
Bellergal in Patients with Pulmonary Tuberculosis Associated with Neurovegetative Disturbances. K. Beyrer.—p. 772.

**Prognosis of Ulcer.**—According to Beust, head physician for the Swiss Federal Railroads, not less than 908 of thousands of employees who left the railroad service during the past twenty years were patients with ulcers, and that in spite of careful preemployment examinations. Statistics on these 908 cases justify the view that an increased morbidity and a premature invalidity may be expected not only in persons who were not operated on for their ulcers of the stomach and the duodenum but also in those operated on. There were recurrences in 50 per cent of the persons with ulcer. The first diagnosis of ulcer may frequently be preceded by loss of working days because of disturbances associated with the condition. Recurrences are observed in one quarter of those operated on, and other disturbances resulting from the ulcer occur in one third after the surgical intervention. As a rule, patients with ulcer, whether or not they were operated on, must be pensioned or will die several years earlier than the average of the total personnel. This statement gains in importance when one remembers that usually ulcers are observed only in persons of advanced age, while the average age at which persons are pensioned or die may be charged with diseases and accidents which are responsible for the discharge of younger persons and consequently are exerting great influence on the average age of discharge. The first relapse may occur after several years, and that applies to persons operated on as well as to those not operated on; a period of several years without recurrence should never be considered a permanent cure. The risk of morbidity and invalidity of persons with ulcer is considerably greater than that of the average of the personnel in the railroad service. Consequently the employment and insurance of persons with ulcer is not justified even though they have enjoyed good health and working capacity for several years.

## Presse Médicale, Paris

### 56:721-736 (Oct. 16) 1948

*Method for Exploring Separately the Function of Glomeruli and Tubules of Kidney. J. Hamburger, A. Ryckewaert, M. Duizend and Miss N. Argant.—p. 721.

Duodenitis of $D_2$ and Problems Roused by It. L. Pavel and Paunesco-Podeanu.—p. 722.

**New Renal Function Test.**—Hamburger and his co-workers injected intravenously 10 Gm. of mannitol into normal persons and into patients with various nephropathies. To both groups 6 Gm. of para-aminohippuric acid was administered simultaneously by mouth. Thirty minutes later the concentration of the two substances in the plasma and the urine was measured in the course of two successive periods of twenty minutes. The respective clearances of the two substances were determined by the ratio between the delivery into the urine in milligrams per minute and by the concentration of the substances in the plasma in milligrams per cubic centimeter. Results showed that in normal persons the clearance of mannitol varies on an average between 120 and 130 cc.; it expresses the intensity of the glomerular filtration. The clearance of the para-aminohippuric acid exceeds 400 cc. provided that the ratio of this substance in the plasma does not exceed 10 mg. per liter; such clearance corresponds to the elimination by the kidney of all of the para-aminohippuric acid which reaches the organ. This clearance depends at the same time on the excretory power of the renal tubules and on the blood flow through the kidneys. Clearances of mannitol less than 100 cc. and clearances of para-aminohippuric acid less than 400 cc. are considered pathologic. The results obtained in the group of patients with diseases of the kidney showed that the new test is more reliable and precise than the classic procedures. It electively demonstrates an alteration of the glomeruli in the initial stage of glomerulonephritis. In arterial hypertension a morbid condition of the kidney may be disclosed very early.

### 56:737-752 (Oct. 23) 1948

*Hypervitaminosis A. G. Mouriquand.—p. 737.

Why do Certain Tumors of the Frontal Regions Develop Without Headaches? J. A. Chavany and E. Woringer.—p. 738.

Physiologic and Pathologic Aspects of Yawning. A. Salmon.—p. 739.

Streptomycin and Surgery in Pulmonary Tuberculosis. H. Joly.—p. 740.

**Hypervitaminosis A.**—Mouriquand cites experimental observations, some of them made as early as 1922, which suggest that administration of vitamin A may have harmful effects, if it is given in excessive doses and particularly over long periods. The danger is especially great in the absence of a properly balanced diet. Whereas rats on a well balanced diet tolerated rather large doses of cod liver oil over prolonged periods without showing signs of osseous dystrophy, animals on deficient diets exhibited after the same doses of vitamin A spontaneous fractures and generalized osseous fragility. Later investigators found that large doses of vitamin A, but not carotene (provitamin A), also produce signs of hypervitaminosis in the osseous system. Men who had eaten livers of polar bears and sea bears, which contain millions of units of vitamin A per pound, showed signs of intoxication in the form of excitation, extreme irritability, vertigo, headaches, vomiting and somnolence. Vertigo and other signs of intoxication were also observed in a man who had taken daily 6,000,000 units of vitamin A for five successive days. These symptoms subsided ten days after this medication was stopped. Other observers reported severe headaches, loss of weight and appetite, falling of hair and enlargement of liver and spleen after administration of excessive doses of vitamin A. The author hopes that the same mistake will not be made with vitamin A as with vitamin D.

## Schweizerische medizinische Wochenschrift, Basel

### 78:973-1000 (Oct. 9) 1948. Partial Index

Megacaryocytic Leukemia with Thrombocythemia. G. Hemmeler.—p. 976.

Method for Determination of Bleeding Time on Tail of Mouse. R. Jürgens and S. Studer.—p. 978.

Erythropoiesis in Human Embryo. W. Knoll.—p. 979.

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years, and that applies to persons operated on as well as to those not operated on; a period of several years without recurrence should never be considered a permanent cure. The risk of morbidity and invalidity of persons with ulcer is considerably greater than that of the average of the personnel in the railroad service. Consequently the employment and insurance of persons with ulcer is not justified even though they have enjoyed good health and working capacity for several years.

## Presse Médicale, Paris

### 56:721-736 (Oct. 16) 1948

*Method for Exploring Separately the Function of Glomeruli and Tubules of Kidney. J. Hamburger, A. Ryckewaert, M. Duizend and Miss N. Argant.—p. 721.
Duodenitis of $D_2$ and Problems Roused by It. L. Pavel and Paunescu Podeanu.—p. 722.

**New Renal Function Test.**—Hamburger and his co-workers injected intravenously 10 Gm. of mannitol into normal persons and into patients with various nephropathies. To both groups 6 Gm. of para-aminohippuric acid was administered simultaneously by mouth. Thirty minutes later the concentration of the two substances in the plasma and the urine was measured in the course of two successive periods of twenty minutes. The respective clearances of the two substances were determined by the ratio between the delivery into the urine in milligrams per minute and by the concentration of the substances in the plasma in milligrams per cubic centimeter. Results showed that in normal persons the clearance of mannitol varies on an average between 120 and 130 cc.; it expresses the intensity of the glomerular filtration. The clearance of the para-aminohippuric acid exceeds 400 cc. provided that the ratio of this substance in the plasma does not exceed 10 mg. per liter; such clearance corresponds to the elimination by the kidney of all of the para-aminohippuric acid which reaches the organ. This clearance depends at the same time on the excretory power of the renal tubules and on the blood flow through the kidneys. Clearances of mannitol less than 100 cc. and clearances of para-aminohippuric acid less than 400 cc. are considered pathologic. The results obtained in the group of patients with diseases of the kidney showed that the new test is more reliable and precise than the classic procedures. It electively demonstrates an alteration of the glomeruli in the initial stage of glomerulonephritis. In arterial hypertension a morbid condition of the kidney may be disclosed very early.

### 56:737-752 (Oct. 23) 1948

*Hypervitaminosis A. G. Mouriquand.—p. 737.
Why do Certain Tumors of the Frontal Regions Develop Without Headaches? J. A. Chavany and E. Woringer.—p. 738.
Physiologic and Pathologic Aspects of Yawning. A. Salmon.—p. 739.
Streptomycin and Surgery in Pulmonary Tuberculosis. H. Joly.—p. 740.

**Hypervitaminosis A.**—Mouriquand cites experimental observations, some of them made as early as 1922, which suggest that administration of vitamin A may have harmful effects, if it is given in excessive doses and particularly over long periods. The danger is especially great in the absence of a properly balanced diet. Whereas rats on a well balanced diet tolerated rather large doses of cod liver oil over prolonged periods without showing signs of osseous dystrophy, animals on deficient diets exhibited after the same doses of vitamin A spontaneous fractures and generalized osseous fragility. Later investigators found that large doses of vitamin A, but not carotene (provitamin A), also produce signs of hypervitaminosis in the osseous system. Men who had eaten livers of polar bears and sea bears, which contain millions of units of vitamin A per pound, showed signs of intoxication in the form of excitation, extreme irritability, vertigo, headaches, vomiting and somnolence. Vertigo and other signs of intoxication were also observed in a man who had taken daily 6,000,000 units of vitamin A for five successive days. These symptoms subsided ten days after this medication was stopped. Other observers reported severe headaches, loss of weight and appetite, falling of hair and enlargement of liver and spleen after administration of excessive doses of vitamin A. The author hopes that the same mistake will not be made with vitamin A as with vitamin D.

## Schweizerische medizinische Wochenschrift, Basel

### 78:973-1000 (Oct. 9) 1948. Partial Index

Megacaryocytic Leukemia with Thrombocythemia. G. Hemmeler.—p. 976.
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This book is not, nor is it intended to be, an encyclopedia. In the interests of brevity it must at times appear dogmatic where multiple interpretations are possible. It is authoritative, to the point and easily read, and can be recommended to a wide variety of readers.

**Dictionary of Genetics Including Terms Used in Cytology, Animal Breeding and Evolution.** Compiled by R. L. Knight, D.Sc., Ph.D., A.I.C.T.A., Senior Economic Geneticist, Empire Cotton Growing Corporation and Sudan Government. Volume II, Lotsya, A Biological Miscellany. Edited by Frans Verdoorn. Cloth. Price, $4.50. Pp. 183. Chronica Botanica Company, P. O. Box 151, Waltham 54, Massachusetts; Stechert-Hafner, Inc., 31 E. 10th St., New York 3, 1948.

A dictionary of terminology for reference in modern genetics is presented. Attempt is made to define and standardize genetic terminology. The author includes the older terminology in genetics, to enable the student to read and understand early literature in genetics, which contains terminology not in present day use. Included terms embrace those in common use in cytology, animal breeding and evolution. Appendixes are included of useful formulas; coefficients of expansion: $(1 + X)^n$ for values of $n$, and $2^n$ and $4^n$ for values of $n$; distributions of $X^2$; genotypes expected in backcrosses and in $F_2s$; tables of percentages in homozygotes; rates of elimination of donor genotype in backcrossing, and international rules for symbolizing genes and chromosome aberrations. An excellent bibliography is included.

This dictionary should be an excellent aid to those who are working directly in genetics and particularly for new students of the subject.

**Textbook of Anaesthetics.** By R. J. Minnitt, Director of Anaesthetics, David Lewis Northern Hospital, Liverpool, and John Gillies, M.C., M.B., Ch.B., J. Y. Simpson Lecturer in Anaesthetics, the University of Edinburgh, Edinburgh. With a Section on Regional Analgesia by L. B. Wevill, F.R.C.S., a Sub-Section on Its Application to Dentistry by Professor John Boyes, F.R.C.S., L.R.C.P., L.D.S., Nuffield Professor of Oral Medicine at the University of Durham, Durham, and a Chapter on Some Legal Aspects Contributed by J. Crossley Vaines, LL.M., Assistant Lecturer in Law, University of Liverpool, Liverpool. Seventh edition. Cloth. Price, $8. Pp. 568, with 229 illustrations. Williams & Wilkins Co., Mt. Royal & Guilford Aves, Baltimore 2, 1948.

The seventh edition has brought the sixth edition up to date, particularly with respect to the chapters on curare and on legal aspects in this field.

The portion on use of regional analgesia in operative dentistry and general operative procedures has been enlarged.

Most readers in the United States will be interested in the chapter on analgesia and anesthesia in obstetrics, especially the part that deals with self-administration of the gas by the patient.

The book is printed on good paper, is well illustrated and emphasizes many of the important technical points that are of great value in daily practice.

***Fortschritte der Biochemie 1938-1947.*** Von Felix Haurowitz, Dr.med., Dr.rer.nat., ord. Prof. de physiologischen Chemie, derzeit Vorstand des Institutes für Biochemie und Medizinische Chemie an der Universität Istanbul, Istanbul. Cloth. Price, 40 Swiss francs. Pp. 364, with 5 illustrations. S. Karger Ltd., 215 Fourth Avenue, New York 3; Holbeinstrasse 22, Basel, 1948.

This modest-looking yet attractive book represents an accomplishment that is unusual and should for that reason be especially welcome to any one wishing to reorient himself in the new biochemistry. It follows a series of volumes that appeared in 1925, 1931 and 1938, and is designed to summarize the progress in this field in readable form for physicians, chemists, pharmacologists and biologists. Although it covers more than 2,200 references to original work in the period from 1938 to 1947, the author manages to be at once coherent, accurate and interesting. His German is unaffected and readable, and his command of the subject matter is such that every fact presented appears in its proper relation to others. This will be appreciated by long-suffering readers of annual reviews in which item after item of abstruse information may be introduced without either historical background to justify it or even a conjunction to suggest its connections with what went before.

The following are the major divisions of the text: use of isotopes in biochemistry; distribution of the minerals; synthesis of organic from inorganic substances; carbohydrates; substances related to the polysaccharides; biochemistry of fatty acids and their derivatives; carotenoids; sterols and steroids; chemistry and metabolism of proteins; the blood pigment and its derivatives; hormone proteins; vitamins and growth-promoting substances; antibiotics and related substances; nucleic acids and their derivatives; intermolecular forces in the living substance; hydrolases; oxidation-reduction reactions; biochemical thermodynamics and kinetics; chemistry of muscular contraction and nervous conduction; immunochemistry; cytochemistry, and laboratory methods. While most topics are easily located within particular chapters, the search is facilitated by a good subject index.

The scarcity of German and French references in the bibliographies is a saddening reminder that biochemical publications in those languages fell far behind during the period covered; for that reason, an American reader looking for clues to recent European work will find little. The book is more likely to be useful to the European reader seeking to locate American data. It is therefore gratifying to report that in this respect the bibliographies, which follow each chapter, are representative and accurate. The book can be recommended without reservations to biochemists and physiologists.

***Ärztliche Rheokardiographie.*** Von Wolfgang Holzer und Kurt Polzer. Band III, Bücherei der physikalischen Medizin. Herausgegeben von Professor Dr. Wolfgang Holzer. Paper. Price, $3. Pp. 141, with 88 illustrations. Wilhelm Maudrich, Spitalgasse 1B, Wien IX/2; imported by Grune & Stratton, Inc., 381 Fourth Ave., New York 16, 1948.

As the authors point out on page 7 the apparatus which they describe and utilize is similar to that independently presented by J. Nyboer in this country in 1940, as the Electrical Impedence Plethysmograph. After describing the principle and the details of the apparatus and procedure there is a theoretic development which goes far afield. This is followed by a typically Germanic elaborate detailing of the use of the instrument under various circumstances clinically. When the entire text is boiled down, it is found that the authors apparently have used this method almost exclusively to determine the isometric contraction period and the ejection time. The reviewer is left with a feeling that there is much ado about trivialities. The technic employed needs considerable implementation before it can be considered of value as an added tool for research or clinical analyses.

***Refraction of the Eye.*** By Alfred Cowan, M.D., Professor of Ophthalmology, Graduate School of Medicine, University of Pennsylvania, Philadelphia. Third edition. Fabrikoid. Price, $5.50. Pp. 287, with 190 illustrations. Lea & Febiger, 600 S. Washington Square, Philadelphia 6, 1948.

This is the third edition of a popular short book on refraction. Its popularity is due to the short but clear descriptions, explanations and examples, as well as the adequate illustrations. It combines the essentials of physiologic optics with methods of examinations and clinical application of optics. It is a good book for students and the young clinician who may avoid pitfalls if careful study of the author's advice of what to prescribe is followed closely. The final chapter on contact lenses and telescopic spectacles is pertinent. Its continued use for the teachers and students of clinical refraction is recommended.

**Food Value Charts.** Cardboard. Price, $1, per set of twelve charts. Philadelphia Child Health Society, N. E. corner 7th & Delancey Sts., Philadelphia 6, 1948.

This set is a revision of a similar series published in 1946. They measure 10 by 12½ inches, are printed on cardboard and provide a useful medium of visual education. Values for cooked foods have been used rather than values for raw foods. These charts are attractive and useful and worthy of note by physicians or other professional persons who need such material for teaching purposes.

# Queries and Minor Notes

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any official bodies unless specifically stated in the reply. Anonymous communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

## CHRONIC HEADACHE

*To the Editor:*—A white woman, age 30, married and mother of three children, has suffered for a long time from periodic headaches, which are almost entirely located in the occipital region, are of extreme severity and usually accompanied with vomiting. In recent months headache has occurred almost always only at the menstrual period or just before. During the preceding ten or twelve years it has usually occurred at the menstrual period also, but in addition has frequently occurred between the periods, particularly if the patient has been subject to any emotional stress or strain. In recent months the patient's menses have become irregular, so that she can never be certain when the flow will appear. However, the headache is often the warning signal and is usually accompanied with moderate uterine cramps. Physical examination reveals a uterus within normal limits as to size, but this organ is definitely tender, as is the right tube. About three years ago the patient had a Baldy-Webster suspension for pronounced ptosis of the uterus, and the headaches were completely relieved by this operation for a period of nine or ten months. Are these headaches due entirely to pelvic disease, and, if so, is hysterectomy warranted?
M.D., Nebraska.

Answer.—Hysterectomy is not indicated in this woman, because the uterus is surely not the direct cause of the headaches. Indirectly, the uterus may be responsible for the headaches through the psyche. For example, if the patient has a morbid fear of having more children, she may wish to have the uterus removed so that there will be no possibility of a pregnancy. In such a case psychotherapy is indicated. It is not stated whether the "ptosis" of the uterus recurred when the headaches came back nine or ten months after the Baldy-Webster suspension.

It is assumed that the woman has had a thorough physical examination, which failed to reveal any cause for the headaches. The headaches may be migraine. Since they often arise or are severer a few days before the onset of the menstrual flow, two types of therapy should be tried. The first is the use of ammonium chloride, 0.6 Gm., three times a day during the fourteen days before the menstrual bleeding begins. During these fourteen days the patient must refrain from adding table salt to her food. The second recommendation is to give a 10 mg. tablet of methyl testosterone daily for the ten days before the expected onset of the menstrual flow.

## DIABETES IN PREGNANCY

*To the Editor:*—A 26 year old woman has diabetes. In 1945 the patient had diabetic coma. Control of the condition has been fair since that time. Her fasting blood sugar is now 88 mg. per hundred cubic centimeters. Blood count and urine are normal. Physical examination does not reveal other abnormalities. She is receiving a mixture of 33 units of protamine zinc and regular insulin. What is your advice concerning pregnancy in this patient?
Alan L. Hays, M.D., Odessa, Texas.

Answer.—One can speak only in generalities because of the individual variation both of diabetes and of pregnancy. The younger the age of a patient when diabetes manifests itself, the more severe the disease is likely to be. A patient who cooperates and in whom the diabetes has been and is easily controlled is more likely to have a successful pregnancy than one who is difficult to control. If the patient becomes pregnant, she should be observed carefully with special reference to control of diet to prevent undue weight gain and she should probably have salt restricted from the beginning in addition to increased protein intake. Careful checking of the diabetes is essential at frequent intervals. The diabetes should be controlled by an internist thoroughly competent in its management. Diabetic patients are more apt to have complications. They are inclined to have large babies and to have toxemias of pregnancy.

There are two schools of thought on the specific treatment of these patients. Priscilla White has performed outstanding work with hormones. She believes that they are not only helpful but essential in the treatment of the diabetic pregnant patient.

A young woman anxious to have a family should not be advised against becoming pregnant, but she should be acquainted with the fact that she may have diabetic children.

The last trimester is the most trying time, and it is during this stage that the patient should be watched for early signs of toxemia.

## PENICILLIN OINTMENT IN ATOPIC DERMATITIS

*To the Editor:*—Please comment on the use of penicillin ointment (fatty base), 500 units per gram, in the treatment of atopic dermatitis. This ointment was prescribed and exclusively used in a case of atopic dermatitis diagnosed as such and treated by a dermatologist (a certified specialist). The patient is a girl of 12 who for two years had a skin lesion just above one ankle, on the anterior surface. The lesion was at first thought to be a fungous infection. It spread locally and then appeared on face and neck and invaded the aural canals. The treatment mentioned completely cleared the condition in four to five months. Has penicillin any effect on allergies of the skin?
M.D., New York.

Answer.—All available evidence would seem to indicate that penicillin has no beneficial effect on allergic diseases except in those cases in which there is an associated infectious element due to an organism that is sensitive to penicillin. That is true also for eczema-dermatitis. It is of value only when there is secondary infection or an infectious dermatitis. Atopic eczema is a notoriously capricious disease which may enjoy spontaneous remissions from time to time, and, of course, the medication of the moment is usually credited with effecting the cure. Such a remission may have occurred in this case, or it may be that the ointment base actually had a protective and soothing effect on the dermatitis.

## KVEIM TEST

*To the Editor:*—Kindly describe the Kveim test for sarcoid.
M.D., Pennsylvania.

Answer.—The Kveim test is a cutaneous test used in the study of sarcoidosis, just as the Frei test is used in lymphogranuloma venereum.

One tenth cubic centimeter of antigen prepared from lymph nodes (or cutaneous infiltrates or tonsils) of patients with sarcoidosis is injected intracutaneously, usually on the flexor surface of the forearm. A positive reaction consists of an infiltrated area, papule, nodule or superficial necrosis with ulceration, which appears at the site of injection sometimes within two weeks, sometimes not for several months, and it may be observable for many months thereafter. In doubtful cases, a histologic examination of the papule with demonstration of a tuberculoid structure would tend to support the diagnosis of sarcoidosis. The antigenic material is not available commercially.

## BEDSIDE METHOD FOR BLOOD SUGAR

*To the Editor:*—In your journal dated Oct. 2, 1948 on page 356, in the article entitled "Insulin and Diet" by H. T. Ricketts, M.D., under abstract of discussion, Dr. E. P. Joslin of Boston speaks of a blood sugar test introduced by Mrs. Leech. Please inform me of the method used. Is it practical for daily office use?
Kerman Snyder, M.D., Philadelphia.

Answer.—The blood sugar method referred to is that of Leech and Woodford (Leech, R. S., and Woodford, N.: A Simple Bedside Method for the Estimation of Blood Sugar, *Jour. Lab. and Clin. Med.* 33:2-8 [May] 1948). According to the authors, the procedure involves a minimum of time, equipment and laboratory facilities. Only approximate results are claimed since the final color produced is compared either with a standard color chart or a series of standard tubes. In their article the authors give figures obtained by them which agree within 5 to 20 mg. of those obtained by blood sugar methods in common use. It would appear that the procedure is practical for office use and desirable particularly if laboratory and technical facilities are limited.

It is appropriate in this connection to call attention to another rapid blood sugar method which has been devised as a screening procedure. The details may be found in an article recently published (Wilkerson, H. L. C., and Heftmann, E.: Screening Method for Blood Glucose, *Jour. Lab. and Clin. Med.* 33:236-238 [Feb.] 1948).

## PREOPERATIVE SKIN MARKING

*To the Editor:*—I have noted in The Journal frequent descriptions of medicolegal cases arising from burns caused by silver nitrate used for the preoperative marking of varicose veins. Please suggest a safer solution which will leave a mark that will withstand a routine skin preparation of soap, water, alcohol, ether and "merthiolate."
Henry M. Stern, M.D., Martinsburg, W. Va.

Answer.—Two per cent aqueous solution of brilliant green has been widely employed for the marking of skin incisions. The dye is not irritating, is mildly antiseptic and shows up under iodine or "merthiolate" solutions. Extensive scrubbing with soap and water obviously produces a fading of brilliant green.

## HYALURONIDASE IN PEMPHIGUS

*To the Editor:—How is the hyaluronidase effect in pemphigus tested? What is the significance of an increased spreading rate?* M.D., Pennsylvania.

Answer.—The hyaluronidase effect in pemphigus has been measured by the ability of the patient's serum or bullous fluid to reduce the viscosity of a hyaluronic acid solution as measured in an Ostwald viscosimeter.

The hyaluronidase inhibitor effect has been measured by treating the enzyme, hyaluronidase, with the patient's serum or bullous fluid and comparing the viscosity reducing power on hyaluronic acid of treated and untreated hyaluronidase.

These measurements are also made in an Ostwald viscosimeter under standard conditions.

An increase in the spreading rate by the intradermal test indicates that the connective tissue barriers have been made weaker, presumably by hyaluronidase action.

## PRESERVATION OF TISSUE

*To the Editor:—Please supply sources of information concerning methods for the preservation of fresh soft tissue specimens in clear plastic.*

Donald W. Ross, M.D., Washington, D. C.

Answer.—Strumia and Hershey (*Science* 99:105-106, 1944) have applied ethyl methacrylate to large moist anatomic specimens to make permanent museum pieces with good results. Recently Peck and Gray (*Am. J. Clin. Path.* 18:910-912, 1948) have used butyl methacrylate for specimens that have been fixed in Kaiserling solution to preserve the color. This method is simple and the specimens have not become dehydrated or discolored in the year that the method has been in use.

## PROGNOSIS FOR CONGENITAL MALFORMATION

*To the Editor:—Patients of mine have 2 children. One was born with absence of certain extrinsic muscles of one eye. The second child was born without a right forearm. Family history of congenital defectiveness is absent. The parents have asked whether they should avoid a third pregnancy. What should be my advice?* C. H. Storey, M.D., Vallejo, Calif.

Answer.—There appears to be a greater likelihood of a baby's having some malformation at birth if its mother has given birth to other children with malformations. Murphy suggests that this hazard is twenty to twenty-five times greater in the woman who has already given birth to an abnormal child than in the population at large. However, statistical studies are inadequate.

## ATROPHY OF TESTICLE WITH VARICOCELE

*To the Editor:—What is the incidence of testicular atrophy from varicocele and following varicocelectomy?* M.D., New York.

Answer.—There may be and frequently is atrophy of the testes from a large varicocele. With small varicoceles, the testes are usually normal as far as the gross examination is concerned. Varicocelectomy, if properly done, should not produce atrophy of a testis that was previously normal. However, if the arterial blood supply is interfered with, then atrophy of the testes can occur.

## SURGERY FOLLOWING IRRADIATION

*To the Editor:—What is the optimum time for total hysterectomy following treatment of carcinoma of the cervix with 6000 mg. hours of radium?*

M.D., Virginia.

Answer.—Following the application of radium it takes three weeks for the maximum effect. Regression then takes another four to six weeks. This, therefore, is the optimum time for surgical intervention. If surgery is undertaken during the time of irradiation erythema, edema and increased vasodilation make the procedure difficult. If too much time elapses, the secondary effect of fibrosis begins and this also makes surgical removal of the uterus difficult.

## CANCER OF THE BREAST

*To the Editor:—In a 69 year old patient with a carcinoma of the breast the size of a bean and without axillary metastasis, is simple mastectomy adequate surgical treatment? Should irradiation be given postoperatively?*

Frederick Elias, M.D., Monticello, N. Y.

Answer.—Simple mastectomy is not adequate for operable mammary cancer. Complete radical operation is required. A difference of opinion exists regarding the value of prophylactic postoperative radiation. If the axillary lymph nodes [illegible] be free of carcinoma microscopically, there is an increasing tendency to omit postoperative radiotherapy.

## PROSTATIC CANCER

*To the Editor:—The patient, an American medical missionary, age 69, was operated on in January 1947 for enlarged prostate. Microscopic examination showed adenocarcinoma. He made a rapid recovery from all body pains, which were severe on left side from shoulder to ankle by taking 2.5 mg. of diethylstilbestrol daily. He left Florida in April, driving to San Francisco to make the return trip to India. He was free from pain until December 1947, playing badminton almost daily. Pain has gradually increased since, and he now requires from 40 to 50 grains (2.4 to 3 Gm.) of acetylsalicylic acid to control them partially. Roentgenograms of shoulder and hip bones show little change in carcinoma growth in the period from December 10 to June 10. He is taking 30 mg. of diethylstilbestrol daily at present. He tried up to 75 mg. daily but discontinued. Is there something better to control the pain?* Hugh H. Linn, M.D., Bowringpet, India.

Answer.—It is possible that this patient is having a recurrence or reactivation of his prostatic carcinoma. He has apparently had a maximum of estrogen therapy, and at age 69, it would seem advisable that he now have bilateral orchiectomy, which may have as spectacular effect, for a few months or even years, as the taking of estrogen had for eleven months. In some instances, however, orchiectomy following prolonged administration of estrogens does not have much beneficial effect. If orchiectomy does not relieve the pain, then the usual well tolerated sedatives in other similar types of conditions should be administered.

## POSTOPERATIVE ENDOMETRIOSIS

*To the Editor:—Please furnish information concerning the control of hot flashes and other menopausal symptoms in a woman 30 years of age who had a bilateral oophorectomy for extensive pelvic and abdominal endometriosis. We have avoided estrogenic therapy for fear of its possible effect on existing endometrial implants that were found to be too numerous to remove.* M.D., New York.

Answer.—Generally, when women have menopausal symptoms following castration for endometriosis, the symptoms are treated not with estrogens but with androgens. The simplest procedure is to have the patient take one or two 10 mg. tablets of methyl testosterone daily for two or three weeks at a time. Or the patient may be given 10 to 25 mg. of testosterone propionate hypodermically once or twice a week for three or four weeks at a time. Some women are not helped sufficiently by androgens alone. In such instances small doses of phenobarbital often help or small amounts of estrogen may be given with the androgens. For example, the patient may be given a combination of 10 mg. methyl testosterone and 0.25 mg. diethylstilbestrol at the same time.

Karnaky (*Am. J. Obst. & Gynec.* 56:146 [Nov.] 1948) advocates the deliberate use of large doses of diethylstilbestrol for the treatment of endometriosis instead of surgical treatment. He begins treatment with 5 mg. diethylstilbestrol daily and increases the dose used each week by adding 5 mg. to the daily dose for a few months. He claims good results from this treatment.

## PINWORM EGGS

*To the Editor:—What substance will kill cystic forms of the common pinworm in the rooms in which infected persons reside? We can eliminate the worms from the child, but he reinfects himself from toys, floors and walls.*

W. B. Herter, M.D., Honolulu, T. H.

Answer.—Unfortunately practical and effective methods of destroying pinworm eggs on floors, rugs and furnishings in the homes of infected persons are not known. Various cleansing agents and disinfectants, as commonly employed, are not effective for killing the eggs. In laboratory experiments, exposure to a 10 per cent solution of saponated cresol solution U. S. P. for three to five minutes destroyed the eggs. A solution of saponated cresol solution (lysol®) 1:32 in water killed the eggs in about fifteen minutes. The use of these solutions on bathtubs, toilet seats, lavatory bowls and fixtures may help in limiting the spread of infection. The facilities should not be used until they have been flushed with cold water thirty minutes after application of the disinfectant. It is obvious that the hands should be protected with rubber gloves in applying the solution. Frequent use of a vacuum cleaner on walls, furniture and floors may aid in the removal of viable ova and thus help to prevent spread of infection.

## TULAREMIA ENCEPHALITIS

*To the Editor:—In the Query and Minor Note, "Tularemia Encephalitis" (The Journal, Oct. 9, 1948, page 466), is the statement, "As far as is now known, neither streptomycin nor high voltage roentgen therapy would be of any avail against the bacillus of tularemia." Your statement, when applied to this particular patient, may be true, but streptomycin is [illegible]ment of tularemia according to all reports on the proved cases of acute disease except those exhibiting encephalitis.*

[illegible], M.D., National Institute of Health, Bethesda 14, Md.